JAMAICA

ANNUAL REPORT

OF THE

MEDICAL DEPARTMENT

FOR THE

YEAR ENDED 31ST DECEMBER, 1935.

Ordered by His Excellency the Governor to be Printed

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1936.

CONTENTS.

(PART I.)

Returns.

MEDICAL DEPARTMENT.

Report for the year ended 31st December, 1935.

(PART I.)

I.—ADMINISTRATION.

(a) New Appointments, Transfers, Etc.

New Appointments—

Dr. A. A. Peat, Medical Officer of Health, St. Ann.
Dr. C. E. Pengelley, Medical Officer of Health, Manchester.
Dr. F. H. N. Cruchley, Medical Officer of Health, Westmoreland (Acting) in addition to his substantive duties as Medical Officer of Health, Hanover.
Dr. W. J. Branday, Medical Officer of Health, St. James (Acting) in addition to his substantive duties as Medical Officer of Health, Trelawny.
Dr. I. Parboosingh, District Medical Officer, Spanish Town (Acting).
Dr. O. C. Pitter, District Medical Officer, Balaclava (Acting).
Dr. J. H. Miller, District Medical Officer, Christiana (Acting).
Dr. C. H. Tomlinson, 4th Assistant Medical Officer, Lunatic Asylum (Acting).
Dr. P. C. Murray
Dr. G. V. Harry } Supernumerary Medical Officers.
Dr. F. W. Aird
Dr. G. E. Valentine, Medical Officer in charge of the Women's V.D. Clinic (Acting).
Miss Jessie A. Pollard, Assistant Matron, Public Hospital, Kingston.
Miss S. Osborne, Matron, Ulster Spring Hospital.
Miss H. I. Brooks, Matron, Sav.-la-Mar Hospital.

Transfers—

Dr. H. S. Brady, from Supernumerary Medical Officer, Public Hospital, Kingston, to District Medical Officer, Lower St. Andrew (Acting).
Dr. H. S. Brady, from District Medical Officer, Lower St. Andrew (Acting), to District Medical Officer, Gordon Town.
Dr. R. L. Chamberlain, from District Medical Officer, Gordon Town, to District Medical Officer, Lower St. Andrew.
Dr. L. B. Lyon, from District Medical Officer, Vere, to District Medical Officer, Santa Cruz.
Dr. H. E. T. McDonald, from District Medical Officer, Santa Cruz, to District Medical Officer, Vere.
Dr. H. D. Collins, from Supernumerary Medical Officer, Public Hospital, Kingston, to District Medical Officer, Frankfield (Acting).
Dr. E. G. Douglas, from District Medical Officer, Frankfield, to District Medical Officer, Christiana.
Mr. E. Poulle from Chief Clerk, Medical Department, to Chief Clerk, Administrator General's Department.
Mr. J. A. Andrean, from Dispenser, St. Ann's Bay, to Dispenser, Hordley.
Mr. S. E. Anderson, from Supernumerary Dispenser, Public Hospital, Kingston, to Dispenser, St. Ann's Bay.

Mr. C. A. Robb, from Dispenser, Linstead, to Dispenser, Annotto Bay.
Mr. S. D. Young, from Dispenser, Annotto Bay, to Dispenser, Linstead.
Mr. C. I. Gruber, from Supernumerary Dispenser, Public Hospital, Kingston, to Dispenser, Morant Bay.
Mr. H. A. Miller, from Dispenser, Morant Bay, to Dispenser, Falmouth.
Mr. J. I. Palmer, from Dispenser, Lionel Town, to Dispenser, Lucea.
Mr. V. F. Watson, from Dispenser, Lucea, to Dispener, Lionel Town.

Resignations—

Dr. A. G. McKenley, District Medical Officer, Christiana.
Dr. W. O. Lofthouse, District Medical Officer, Balaclava.

Retirements—

Mr. E. A. A. Levy, Superintendent and Dispenser, Lepers' Home.
Miss Julia Nicholson, Matron, Ulster Spring.
Dr. A. A. Anderson, District Medical Officer, Spanish Town.

Promotions—

Mr. B. M. Clark, from First Class Clerk, to Chief Clerk, Medical Department.
Mr. S. A. Johnson, from Dispenser, Falmouth, to Superintendent and Dispenser, Lepers' Home
Miss E. F. Leamy, from Matron, Sav.-la-Mar, to Matron, Lepers' Home.

Deaths—

Dr. J. S. Myers, Assistant Medical Officer, Lunatic Asylum.
Miss M. McPherson, Matron, Lepers' Home.

In addition:

The services of Dr. F. E. Lowe, Acting Medical Officer of Health, St. James and of Dr. A. T. Foster, Acting District Medical Officer, Golden Grove, were terminated
Mr. I. W. Anderson, Dispenser, reduced to Supernumerary Dispenser.
Dr. J. N. McIntosh, Medical Officer of Health, St. Elizabeth, Dr. J. I. Rerrie, Medical Officer of Yaws Commission, and Dr. R. A. S. Cory, Assistant Medical Officer of the Tuberculosis Commission, were awarded Fellowships by the Rockefeller Foundation to the United States of America.

(b) Financial.

	£	s.	d.
Expenditure:			
Medical—General Administration—			
Personal Emoluments	42,052	1	4
Other Charges	21,404	0	2
Medical—Hospitals and Lepers' Home—			
Personal Emoluments	36,207	10	2
Other Charges	45,492	9	2
Lunatic Asylum—			
Personal Emoluments	22,405	8	0
Other Charges	19,090	13	8
Total Expenditure	£186,652	2	6
Total Expenditure of the Whole Colony	£2,171,477	1	11
Percentage of Expenditure on Medical Department	8.5%		
Revenue from Fees, etc.	£8,157	6	1

II.—GENERAL REMARKS.

The general health conditions of the Island were as satisfactory in 1935 as in 1934—the death rate showing a very slight rise from 17.06 per 1,000 to 17.7 in 1935. There was ad ecrease in the number of deaths recorded from Pulmonary Tuberculosis, Typhoid Fever, Malaria and Undefined Fevers, but an increase in those from Infantile Diseases and Cancer and a sharp rise due to Pneumonia.

The increasing use made of the wider and cheaper facilities provided for free treatment is leading to improvement in the health of certain districts especially those where yaws and malaria programmes are being satisfactorily developed, a valuable index being the recorded improvement in the attendance of school children.

Two epidemics of typhoid occurred in the rural area of Lower Trelawny and the town of Morant Bay with 32 and 22 cases respectively.

2—Re-Organisation of the Medical Service.

During the year, the District Medical Officers' Service was re-organized by abolition of whole-time post, except in Kingston, and renewal of all contracts by consent of the Medical Officers where necessary, so that all District Medical Officers' posts together with the junior posts in the Mental Hospital and the Kingston Public Hospital, were placed on the same terms of employment and salaries to ensure flexibility and efficiency of administration.

2.—Outdoor Dispensary System.

Every District Medical Officer is now provided with a central dispensary near to his residence—in the case of hospital districts the Out-patient Departments serve the purpose—and a varying number of subsidiary dispensaries, the number of the latter having been increased from 42 to 52 during the year.

These facilities now provide for the extension to every Medical District of the Outdoor Dispensary Ticket Service established in 1933-34, and the policy is to make this service still more available and convenient to the large group of population who are eligible to make use of it by increasing the number of subsidiary dispensaries as funds are available and increasing the number of Authorized Ticket Distributors. Details of the number of persons treated under this system are mentioned in Section V.

3.—Hospital Nursing Staff.

Some progress was made in placing the salaries of qualified nurses in Government employment on a proper basis in order to eliminate the anomaly of certain qualified nurses being paid at rates provided for probationers. Careful consideration is also being given to the establishment of suitable cadres of nurses and ward attendants for each Institution based on its nursing requirements.

4.—Public Health Work.

It was decided that the Bureau of Health Education should be taken over by the Government from the Rockefeller Foundation at the end of the year.

Plans are under consideration for re-organisation of the Health Service so as to absorb and place on a permanent basis the trained personnel and activities now being undertaken by temporary Commissions in order to make these services more widely available for developing the health activities of Local Boards of Health.

5.—Central Laboratory.

The work of the Laboratory increased from 27,379 specimens examined in 1934 to 39,566 specimens in 1935. This increase was mostly shown in the serological examinations, 15,366 being carried out for Syphilis and 4,369 for Enteric Diseases.

Improvement was effected in the detection of fevers, and a circular was sent to all physicians asking them to send slides for malaria parasites with all their Widals.

Study was carried out on the latest methods of culture of Tubercle bacilli with interesting results. Research work was also carried out on the incidence of the Paratyphoid fevers with results which support the impression previously formed that these are very rare in the Island.

Detailed information will be found in Section VII

6.—Women's Free Clinic.

This clinic was commenced on the 21st October under the supervision of the Government Bacteriologist. The staff consists of 1 physician, 1 nurse, and 1 clerk-technician. During the 11 weeks of operation, 569 new patients were admitted and the total attendance at the Clinic was, during that time, some 4,000 patients.

The clinic promises to fill a long-felt want in that it is established in the south-eastern section of the city and ladies of easy virtue are attending.

7.—Housing.

A Central Housing Advisory Board was appointed during the year with the Honourable Superintending Medical Officer as Chairman whose primary duties are:

(a) To receive and consider reports from Parochial Boards and other organisations as to the housing conditions in the respective parishes;
(b) To co-operate with the Central Lands Advisory Board;
(c) To make representations to the Central Government as to measures expedient for relieving local conditions.

To assist this Board in considering the problem, Medical Officers of Health carried out preliminary surveys on housing conditions in relation to health in their areas.

8.—Control of Nursing Homes.

Following on the passing of a Law in 1934 for registration and control of Nursing Homes, inspections were carried out in respect to all applications for registration and 12 were registered during 1935. This control has resulted in considerable improvement in the sanitary condition and equipment of Nursing Homes and proper records are now being kept of the cases treated.

9.—General Diseases.

The following table shows the comparison of the more important groups of diseases of In-patients in the Hospitals during 1934 and 1935:—

Diseases.	1934. Cases.	1934. Deaths.	1935. Cases.	1935. Deaths.
Diseases of the Nervous System	581	89	849	93
Diseases of the Eye ..	597	..	616	..
Diseases of the Circulatory System ..	749	155	1,141	132
Diseases of the Respiratory System ..	1,306	205	2,009	303
Diseases of the Digestive System ..	4,475	250	4,070	226
Diseases of the Genito-Urinary System (non-venereal)	3,438	189	4,435	261
External Causes	4,127	76	4,114	91

Communicable Diseases.

These are dealt with in detail by the Senior Sanitary Medical Officer in the following section on Sanitation.

T. J. Hallinan,
Superintending Medical Officer.

III.—SANITATION.

1.—Administration.

(a) *Personnel.*—Dr. A. A. Peat returned from study leave having obtained the diploma of Master of Public Health, Harvard University, and was appointed Medical Officer of Health for St. Ann.

Dr. C. E. Pengelley was appointed whole-time Medical Officer of Health for the parish of Manchester.

Dr. F. H. N. Cruchley took charge of the parish of Westmoreland in addition to his substantive duties as Medical Officer of Health Hanover.

Dr. W. J. Branday took charge of the parish of St. James in addition to his substantive duties as Medical Officer of Health, Trelawny.

Dr. J N. McIntosh, Dr. R. A. S. Cory and Dr. J. I. Rerrie were granted Fellowships by the Rockefeller Foundation. Dr. McIntosh to study Port Health Work in England and the United States, Dr. Cory to do a year's course in Tuberculosis and Dr. Rerrie a course in Public Health.

The attendances of members of the Central Board of Health at its 5 meetings were:—

Major T. J. Hallinan, C.B.E., Chairman	1
Dr. J. M. Hall, Acting Chairman ..	3
Dr. E. E. Penso	4
Dr. E. D. Gideon	5
Dr. S. Lockett	3
Mr. N. Roots	4
Mr. N. W. Manley	2

The Senior Sanitary Medical Officer was present on 3 occasions and the Acting Senior Sanitary Medical Officer on 1 occasion.

1. *Parochial Staff.*—Table I shews the staff employed by the Local Boards of Health.

Table I.

Parish.	Health Officers.		Sanitary Inspectors.				Nurses.		Clerks	Dental Surgeon.	Others
	Whole-time.	Part-time.	Chief.	Whole-time.	Part-time.	Specially for Latrine Construction.	Whole-time.	Part-time.	Whole-time.	Part-time.	
Kingston ..	3	..	1 (1)	15 (12)	..	..	2	1	2	1	2
St. Andrew ..	..	..	1 (1)	16 (8)	..	..	1	5	1	1	..
St. Thomas ..	..	1	1 (1)	4 (3)	1	..	..	5	1	..	..
Portland ..	1	..	..	2 (1)	3 (3)	..	..	2	1	1	2
St. Mary ..	1	..	1 (1)	8 (7)	..	..	..	5	2	1	..
St. Ann ..	1	..	..	9 (7)	..	..	..	2	1	..	..
Trelawny ..	1	..	..	4 (4)	..	..	..	3	1	1	
St. James ..		..	1 (1)	8 (6)	..	1	5	..	..	1	..
Hanover ..	1	..	..	3 (3)	..	..	..	3	1	1	1
Westmoreland	..	..	1 (1)	4 (2)	7 (3)	..	..	4	1	..	1
St. Elizabeth ..	1	..	..	5 (5)	..	..	..	4	..	..	..
Manchester ..	1	..	1 (1)	5 (4)	..	..	..	6	..	..	..
Clarendon ..	1	..	1 (1)	8 (4)	..	..	..	5	..	1	..
St. Catherine ..	1	..	1 (1)	5 (4)	5 (4)	..	..	3	1	1	1
Port Royal ..	..	1	..	..	1	..	..	..	..	..	..

2. *Staff of Central Board of Health.*—Table II shews the staff employed by the various Commissions.

Table II.

Commissions.	Medical Officers.	Overseers of Works.	Clerks.	Microscopists and Technicians.	Field Officers.	Nurses.	Dispensers.
Hookworm ..	2	2	6 (3)	4	17 (11)	..	..
Malaria ..	1	..	2	1	9 (6)	..	..
Tuberculosis ..	2	..	2	1	..	2	..
Yaws	2	..	4	2	9 (7)	..	2

NOTE.—The Rockefeller Foundation provides a Central Laboratory with Staff and equipment for the Yaws Commission, 3 Specialists for work on Yaws and Tuberculosis and 9 Sanitary Inspectors for Yaws work.

The figures in brackets shew the number of persons who hold a Certificate from the Sanitary Inspectors' School or the Royal Sanitary Institute.

3. *School Dental Clinics.*—The following parishes maintained School Dental Clinics: Kingston and St. Andrew, Portland, St. Mary, Trelawny, St. James, Hanover, Clarendon and St. Catherine.

The Central Board of Health contributed 25% of the cost in the parishes of Portland, Trelawny, St. James and Clarendon.

Detailed Reports of the Commissions are given in Sections II, III, V and VI of Part II of this Report.

(b) *Finance.*—Table III shews the expenditure of the various parishes for Public Health.

Table III.

Administration.	Kingston and St. Andrew.	St. Thomas.	Portland.	St. Mary.	St. Ann.	Trelawny.	St. James.	Hanover.	Westmoreland.	St. Elizabeth.	Manchester.	Clarendon.	St. Catherine.	Port Royal.
	*	*	*	*	*	*	*	*	*	*	*	*	*	*
H. O. Salaries	1,979	300	699	704	370	655	408	756	100	720	588	769	800	600
Travelling Allowance ..	450	100	150	200	168	200	59	175	112	150	137	150	200	..
S. I. Salaries ..	3,278	800	520	1,298	1,001	600	895	240	463	423	662	1,000	1,049	52
Travelling Allowance ..	831	..	51	280	153	150	136	60	97	119	201	150	372	..
Clerks	450	26	120	228	38	120	78	52	50	..	..	..	120	..
Messengers, etc.	386	52	21	26	..	18	..	15	..	2	11	..	26	..
Total I	7,374	1,278	1,561	2,736	1,730	1,743	1,576	1,298	822	1,414	1,599	2,069	2,567	652
2. Cleansing	22,908	464	880	1,911	635	292	1,245	271	448	226	298	405	1,586	80
3. I. D. Prevention	695	4	94	55	123	5	400	24	16	13	19	17	162	5
4. Cemeteries	2,235	99	158	211	125	69	33	42	27	10	78	10	140	5
5. Child Welfare	1,225	145	60	120	23	60	355	120	180	93	400	153	907	..
6. Conservancy	..	..	25	110	..	..	56	11	..	16	210	37	..	144
7. Drainage	..	384	361	118	76	25	316	23	79	17	..	..	238	..
8. Water Supply	741	1,310	353	230	570	26	188	231	492	72	331	..	808	79
9. Miscellaneous	375	86	331	68	510	40	253	501	22	32	154	..	664	..
Total II ..	28,179	2,492	2,262	2,823	2,062	517	2,846	1,223	1,264	479	1,490	622	4,505	313
Total (Grand) ..	35,553	3,770	3,823	5,559	3,792	2,260	4,422	2,521	2,086	1,893	3,089	2,691	7,072	965

* Salaries and Travelling Allowances of Medical Officers of Health paid by Government.

The Central Government spent the following amounts on matters affecting the Public Health:—

	£	s.	d.
Central Board of Health Expenses ..	10,751	13	3
Quarantine Expenses ..	869	8	11
Hookworm Commission ..	6,624	15	9
Yaws	1,950	12	6
Vaccination Fees	1,727	4	5
Infectious Disease Control ..	612	11	10
Child Welfare Association ..	991	13	4
Malaria Commission	3,903	12	11
Bureau of Health Education ..	144	4	1
School Dental Clinics ..	457	1	5
Training School for Sanitary Inspectors	60	1	7
Tuberculosis Clinic ..	4,789	10	6
	£32,882	10	6

The Rockefeller Foundation spent £5,673 6s. 11d. as follows:—

		£	s.	d.
Central Office		386	3	2
Tuberculosis—Dispensary ..	£6 17 6			
Special Survey ..	340 19 5			
Research Work, Mental Hospital	339 3 3	687	0	2
Water Improvements and Sanitation ..		25	19	8
Yaws Commission		4,233	14	8
Fellowship Expenditure of Drs. McIntosh, Rerrie and Cory		78	18	11
Bureau of Health Education		261	10	4
		£5,673	6	11

This does not include the salaries of the Director for Jamaica and five other Specialists on the Local Staff of the Foundation.

(c) *Legal.*—The following Laws affecting Public Health were enacted in 1935:—

No. 9—A Law to amend further the Adulteration Law, 1908 (Law 25 of 1908).

No. 10—A Law to amend the Public Health Law 1925 (Law 18 of 1925).

2. Vital Statistics.

Population.—The estimated population on 31st December, 1935, was 1,121,823 distributed by parishes as shewn in Table V.

Birth Rate.—37,379 births were registered, giving a rate of 33.48 per 1,000 population. 72.23% of the births were illegitimate.

Deaths.—Table V shews the population, total deaths and deaths from certain causes by parishes. The crude death rate rose from 17.08 in 1934 to 17.7 in 1935.

Infant Mortality.—The Island death rates under 1 year and under 5 years were respectively 137 and 186 per 1,000 live births as compared with 131 and 181 in 1934.

Table V shews by parishes, the population, deaths from certain causes and the number of each medically certified.

In only four parishes, namely, Kingston, St. Mary, St. Catherine and Trelawny do the local Registrars supply Medical Officers of Health with copies of death records. Other parishes have not yet provided the funds to obtain this essential information and the Medical Officers of Health concerned keep no records of mortality from month to month nor can they offer any comment on the causes supported by statistical data. No Parochial Health Department is provided with records of births.

The percentage of total deaths registered with medical certificates continues to improve as shewn by the following Table.

Table IV.—Medical Certification of Deaths.

Year.	Total Deaths.	Percent Medically Certified.
1931 ..	19,377	32.9
1932 ..	18,265	35.8
1933 ..	20,969	37.2
1934 ..	18,731	39.4
1935 ..	19,706	41.2

TABLE V.

Parish.	Estimated Population on 31st December, 1935.	Pulmonary Tuberculosis.	Typhoid Fever.	Malaria Fever.	Black Water Fever.	Undefined Fever.	Diarrhœa and Enteritis.	Chronic Nephritis.	Cancer and other Malignant Tumours.	Infantile Convulsions (under 5 years of age)	Congenital Debility.	Pneumonia.	Other ill-defined and unspecified Causes.	All other Causes.	Total Deaths.
Kingston ..	75,785	138	63	44	..	25	74	81	76	9	127	152	7	1,003	1,799
Port Royal ..	1,095	..	..	..	..	..	2	..	..	3	..	..	..	6	11
St. Andrew ..	61,556	243	4	12	..	104	51	41	31	74	203	41	85	839	1,728
St. Thomas ..	50,341	40	15	73	..	166	61	55	7	104	48	39	72	439	1,119
Portland ..	60,121	58	10	32	..	175	12	35	10	32	131	48	60	453	1,056
St. Mary ..	88,513	92	15	70	2	254	41	65	21	72	130	41	70	629	1,502
St. Ann ..	93,493	90	18	20	..	107	42	27	28	94	118	54	99	644	1,341
Trelawny ..	43,610	27	18	25	..	74	37	30	18	104	92	38	32	315	810
St. James ..	53,716	48	19	21	..	204	18	55	18	120	106	50	86	485	1,230
Hanover ..	48,930	31	15	24	..	75	39	34	19	144	54	46	23	404	908
Westmoreland ..	86,860	38	12	60	..	195	31	39	27	115	146	34	56	640	1,393
St. Elizabeth ..	102,809	79	15	47	..	149	22	47	26	255	124	46	61	669	1,540
Manchester ..	83,367	50	11	14	1	98	25	58	28	99	96	63	48	580	1,171
Clarendon ..	108,096	69	32	51	..	334	59	68	41	132	161	66	163	704	1,880
St. Catherine ..	117,910	92	20	75	..	428	37	65	19	145	228	60	168	881	2,218
Add excess Arrivals over Departures from Census Day 1921 to 31.12.35 ..	45,621	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Whole Island ..	1,121,823	1,095	267	568	3	2,388	551	700	369	1,502	1,764	778	1,030	8,691	19,706
Medically Certified ..	..	856	261	506	3	5	370	450	320	23	147	694	5	4,478	8,118

Communicable and Infectious Diseases.

Table VI. shews the notification of cases of Infectious Diseases for the year, by months and by parishes.

Table VI.

	Typhoid.	Para Typhoid.	Dysentery.	Pulmonary Tuberculosis.	Leprosy.	Chicken Pox.	Diphtheria.	Scarlet Fever.	Erysipelas.	Cerebro-spinal Meningitis.	Poliomyelitis.	Encephalitis. Lethargica.	Puerperal Fever.
By Months—													
January	71	..	14	104	4	9	1	..	1	..	..	..	9
February	50	..	15	108	5	23	..	..	1	..	2	1	3
March	55	..	8	140	3	49	2	..	2	..	1	..	4
April	60	..	10	134	4	54	..	..	2	1	1	..	7
May	79	2	8	117	4	53	1	1	4	1	..	..	4
June	98	..	4	128	1	40	..	2	1	2	..	..	2
July	109	..	11	130	1	18	1	..	..	1	..	..	..
August	79	1	15	100	4	21	1	1	2	..	1	..	3
September	127	1	45	123	2	9	..	1	2	..	..	..	1
October	142	..	10	108	1	4	..	..	1	..	..	..	1
November	121	..	22	109	4	59	..	..	2	..	..	..	1
December	122	..	22	94	..	8	..	1	3	..	..	..	1
	1,113	4	184	1,395	33	347	6	6	21	5	5	1	36
By Parishes—													
Kingston	193	..	121	453	2	88	2	1	3	1	1	..	2
St. Andrew	135	..	20	136	1	59	4	2	2	..	2	..	1
St. Thomas	63	..	8	58	1	7	..	..	..	1	..	..	4
Portland	33	..	2	46	2	17	..	..	..	..	..	..	2
St. Mary	44	1	..	87	1	12	..	..	1	..	..	..	3
St. Ann	64	..	3	106	1	24	..	1	3	..	..	..	1
Trelawny	81	1	1	29	3	5	..	..	1	..	..	..	1
St. James	88	..	6	64	2	14	..	..	1	2	2	..	1
Hanover	43	1	..	28	..	9	..	1	..	..	..	..	8
Westmoreland	54	..	..	49	3	19	..	..	1	1	..	..	2
St. Elizabeth	54	..	1	62	2	51	..	..	..	..	..	..	2
Manchester	44	..	3	59	2	7	..	..	5	..	..	..	5
Clarendon	131	..	9	91	7	2	..	..	4	..	..	..	1
St. Catherine	84	1	10	127	6	32	..	1	..	..	..	1	2
Port Royal	2	..	..	..	..	1	..	..	..	..	..	..	1
	1,113	4	184	1,395	33	347	6	6	21	5	5	1	36

Enteric Fevers.—Table VII shews Case Rates and Death Rates recorded annually since 1931.

Table VII.—Enteric Fevers.

Year.	No. of Cases.	No. of Deaths.	Case Rate per 100,000 population.	Death Rate per 100,000 population.
1931	900	110	86.8	10.6
1932	929	264	87.6	24.9
1933	1,092	223	100.9	20.6
1934	1,361	296	123.2	26.9
1935	1,117	267	100.5	23.8
Average Annual for 5-year period ..	1,080	232	99.8	21.4

While 1935 shews some improvement over 1934, there has been no progress for the past five years in the control of typhoid fever and the situation is unsatisfactory even when allowance is made for undoubted improvement in reporting of cases and deaths since 1930 when the whole-time Health Service was established. Moreover, these data indicate far too high an incidence of the disease.

Typhoid is almost entirely confined to the age group 10–40 in that section of the population who do not live under satisfactory sanitary conditions and who do not take adequate care in personal hygiene or food and drink supplies, while it is comparatively rare among the better housed and educated classes.

The records of Typhoid are of particular value because increasing attention is being given to laboratory examinations and all but a few deaths are medically certified.

Table VIII shews the Death Rates per 100,000 population by parishes since 1931.

Table VIII.

Parish.	1931.	1932.	1933.	1934.	1935.	Average for 5 year period.
Kingston ..	109.4	83.5	96.8	108.6	83.1	76.6
Port Royal ..	..	..	..	..	..	..
St. Andrew ..	5.1	8.4	10.0	6.6	6.5	7.3
St. Thomas ..	37.3	47.3	22.3	36.1	29.8	34.6
Portland ..	29.7	20.7	12.0	10.0	16.6	17.8
St. Mary ..	35.6	27.0	23.3	46.9	16.9	29.9
St. Ann ..	16.0	10.2	10.1	28.4	20.3	17.0
Trelawny ..	17.1	19.2	26.3	18.7	41.3	24.5
St. James ..	84.9	65.3	45.1	47.5	35.4	55.6
Hanover ..	26.2	27.9	10.6	41.5	30.7	27.4
Westmoreland ..	28.2	32.6	20.3	18.7	13.8	22.7
St. Elizabeth ..	13.6	14.5	5.1	6.9	14.6	10.9
Manchester ..	1.2	5.1	10.0	9.8	13.2	7.9
Clarendon ..	19.0	11.8	14.5	14.2	29.6	17.8
St. Catherine ..	23.2	19.5	13.1	18.0	17.0	18.2

The very high rate in Kingston and the low rate in St. Andrew are apparent and are due to the fact that nearly all cases from St. Andrew are treated in the Kingston Public Hospital and deaths there are recorded in Kingston.

The general reduction in 1935 is more apparent than real because of the high incidence of 1934.

During 1935 there were two important epidemics, one in the valley of the Martha Brae River with 32 cases and one in Morant Bay with 22 cases. Five smaller outbreaks were also noted at York Castle in St. Ann with 10 cases, Lances Bay in Hanover with 6 cases, Mulgrave in St. Elizabeth and Craig and Fairfield in Manchester.

The Morant Bay epidemic occurred in November, the dates of onset of 15 out of the 22 cases were stated to be within a period of 5 days from the 15th of the month to the 20th. The explosive nature of the onset and the distribution of the cases pointed definitely to the town water supply as the vehicle of infection. The enclosed spring intake of the supply was not completely protected from surface pollution, and the daily record of rainfall prior to the dates of onset give support to the view that pollution occurred by washing of infected material into the intake basin.

Proper protective works were promptly carried out to exclude the further possibility of surface pollution and nearly every one in the town was immediately inoculated.

The outbreak in the Martha Brae Valley occurred in the course of a general rise of typhoid in Lower Trelawny from August to November. During this period there were 52 cases notified in the area, 32 of which occurred among the sparsely populated districts close to the Martha Brae River and which use the river water for domestic purposes. Several cases occurred in the town of Falmouth which uses the same water supply, and there is every reason to believe that pollution of the Martha Brae River was the essential factor in the outbreak.

The chief measures of control urged are construction and maintenance of sanitary latrines of the deep pit type where water-carriage cannot be provided, protection and purification of water supplies, hospitalisation of cases, inoculation of contacts and of large groups when indicated by an unusual incidence in any district and educational activities.

A total of 10,444 new latrines were constructed during the year and 14,206 defective ones repaired An important factor is the introduction of a cast concrete construction for the floor and seat of a pit latrine which costs about one-half of similar construction in wood, with the durability of concrete. It also has advantages of handling for the purpose of cleaning pits or transferring to new pits.

Surveys carried out in Kingston shewed that 90% of pit latrines were not fly-proof and efforts are now being made to correct these highly unsatisfactory conditions. 20% of the premises in the compulsory sewered areas of the city were found to have pit latrines instead of being connected to sewers and progress is being made in eliminating these. 2,500 yards of new sewer mains were installed in Rae Town during 1935 by the Water and Sewerage Board.

In Montego Bay about 25% of the premises are provided with water closets and absorption pits. The remaining 75% have pit latrines. About 78 premises are stated to be not provided with latrines. Not more than 60% of the pit latrines can be regarded as being satisfactory, a very high proportion of them being only fit for demolition and replacement, while in the poorer tenement sections the accommodation is entirely inadequate for the number of occupants. Very little progress has been made during the year to correct these unsatisfactory conditions although the Medical Officer of Health has made strong representations to the Local Board of Health.

Some progress was made in the towns of Port Maria and Port Antonio in replacing the insanitary bucket systems and in Port Maria 40 premises have replaced buckets with water-carriage and absorption pits.

With the assistance of the Senior Sanitary Inspector of the Central Board of Health, Westmoreland has revived activities on latrine construction which had ceased two years ago. Hanover, has, however, failed so far to renew theirs, although recent surveys shew that in the town of Lucea 30.0% of the premises have no latrines.

The public are appreciating more and more the importance of hospitalisation of typhoid, and during the year 70% of the cases notified were admitted. This is particularly marked in Kingston and St. Andrew where 84% were treated in the Kingston Public Hospital.

35,094 anti-typhoid inoculations were given as compared with 26,952 in 1934.

Pulmonary Tuberculosis.—Table IX shews Case Rates and Death Rates per 100,000 population annually since 1925.

Table IX.—Pulmonary Tuberculosis.

Year.	Case Rates.	Death Rates.
1925 ..	57.4	142.9
1926 ..	66.6	129.7
1927 ..	84.2	136.9
1928 ..	96.6	128.9
1929 ..	102.2	126.3
1930 ..	107.3	128.6
1931 ..	127.7	140.1
1932 ..	123.2	118.0
1933 ..	114.8	110.1
1934 ..	127.7	101.4
1935 ..	125.5	98.5

It will be seen that the recorded death rate continues to decline.

There is continued improvement in the accuracy of the data on tuberculosis. Medical Officers of Health endeavour to obtain confirmation of diagnoses on all notifications by sputum and/or X-Ray examination. medical certification of deaths shewed further improvement 78% of the 1,095 being certified as compared with 61% in 1934.

The improvement in data is, as to be expected, most marked in the Corporate Area of Kingston and St. Andrew where the well equipped Tuberculosis Dispensary has been operating since 1928 and where medical certification of death is well enforced for the purpose of burial. Table X shews the information for this area since 1925.

Table X.—Pulmonary Tuberculosis in the Corporate Area of Kingston and St. Andrew.

Year.	Cases.	Deaths.	Case Rates.	Death Rates.
1925	181	354	148.8	291.0
1926	185	334	150.5	271.8
1927	351	370	282.8	298.2
1928	456	335	364.1	267.5
1929	494	335	389.8	264.3
1930	480	382	373.4	297.1
1931	624	409	477.5	213.0
1932	565	360	428.1	272.7
1933	499	403	374.0	302.1
1934	558	384	414.5	285.3
1935	589	381	410.2	280.1

These two parishes together provided 32% of the total cases notified for the Island. Reporting of cases is, however, still very poor in some parishes, although steady improvement continues as shewn in Table XI.

Table XI.—Pulmonary Tuberculosis.

Parish.		1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.	1934.	1935.	Average for 10-year period.
St. Thomas	Cases ..	19	24	39	38	50	54	72	35	108	58	50
	Deaths	61	78	65	62	67	87	70	49	55	40	63
Portland	Cases ..	56	49	49	47	36	44	66	76	65	46	53
	Deaths	105	82	86	94	78	107	85	59	69	58	82
St. Mary	Cases ..	26	34	41	62	83	86	92	102	80	87	69
	Deaths	83	91	90	66	103	122	101	97	112	92	96
St. Ann	Cases ..	54	65	60	57	73	108	82	99	88	106	79
	Deaths	71	85	90	88	84	100	96	88	81	90	87
Trelawny	Cases ..	8	6	23	30	49	43	27	44	43	29	30
	Deaths	13	27	26	41	36	37	20	40	31	27	30
St. James	Cases ..	64	40	54	42	55	100	120	77	84	64	70
	Deaths	51	40	55	53	40	55	53	44	33	48	47
Hanover	Cases ..	26	29	25	9	10	17	24	24	28	28	22
	Deaths	27	38	26	23	28	43	34	33	36	31	40
Westmoreland	Cases ..	23	13	19	34	27	14	32	29	30	49	27
	Deaths	62	62	69	61	73	66	48	53	35	38	59
St. Elizabeth	Cases ..	24	24	12	19	18	37	27	32	52	62	31
	Deaths	83	79	96	82	93	106	101	88	57	79	117
Manchester	Cases ..	17	42	35	40	36	35	35	30	64	59	39
	Deaths	66	73	89	96	89	74	82	67	52	50	74
Clarendon	Cases ..	40	43	58	65	63	87	67	80	79	91	67
	Deaths	65	71	57	67	70	71	67	54	64	69	65
St. Catherine	Cases ..	77	77	61	67	97	74	96	112	121	121	90
	Deaths	174	199	160	176	153	178	135	116	103	92	149
Port Royal	Cases ..	..	..	1	2	4	2	1	1	2	..	1
	Deaths	1	..	1	1	1	1	..	..	1	..	0.6

The disease occurs mainly among the poorer classes living under overcrowded insanitary conditions while the better classes living under good hygienic conditions show no greater incidence than comparable classes in northern countries. The conditions favourable to the spread of the disease exist mainly in the slum areas of Kingston and Montego Bay, though housing conditions in many rural areas also encourage its spread among the members of a family. In inadequately treated cases among those of pure Negro descent it tends to run an acute and rapidly fatal course, with excretion of unusually large numbers of bacilli in the sputum, but in those of Chinese decent the diseases follows a more chronic course.

A few years ago it was rare for cases among the poorer classes to come under medical care until far advanced and usually hopeless, but with the increasing use of surgical methods at the Kingston Dispensary during the past 3 or 4 years, experience is shewing that arrest of the disease can be obtained even on advanced cases, that an increasing proportion of new cases are attending in earlier stages and that a hopeful prospect in respect of result of treatment lies before us when adequate hospital and sanatarium facilities are available for this group of the population.

The outstanding development in the progress of control during 1935 was the public subscription of over £32,000 in ten months towards the Jubilee Memorial Appeal Fund started by the Anti-Tuberculosis League. It is proposed to establish a large Central Institution near to Kingston and special wards attached to District Hospitals, the additional funds required being provided from loan. When this programme is completed at least 500 beds will be available, 300 in the Central Institution and 200 distributed in District Hospitals and, the most serious weakness in an otherwise well balanced programme, namely lack of beds, will have been largely eliminated.

The Kingston Dispensary serves as the centre of all tuberculosis activities of Government, with a Medical Officer and Assistant Medical Officer both specially trained, and who also direct a temporary 44 bed hospital located on the grounds of the Corporation Poor House and also undertake the medical care of patients in the Tuberculosis Wards of the Poor House itself. At this centre the records of cases are collected from all Medical Officers of Health and cases are referred for diagnosis and treatment from various parts of the Island as convenient, including some from private practitioners who are making increasing use of diagnostic service. 4 nurses are employed for home visiting in Kingston and Lower St. Andrew who maintain supervision of infected families who are mainly among the poorer sections of the town.

The Dispensary works in close co-operation with the Anti-Tuberculosis League which provides the salary of 2 nurses, aids indigent families with supplies of milk, etc., and undertakes rehabilitation of arrested cases by training them for suitable occupations.

During 1935 this central unit notified 32% of the total new cases recorded for the Island and its main activities are summarised as follows:—

Clinical and X-Ray examinations, new patients	1,428
Clinical examinations without X-Ray, new patients	1,840
Operation of Artificial Pneumothorax	1,930
Operation of Phrenecectomy	114
Home Visits	5,588
Total No. of families kept under observation	790
Total No. of cases treated as in-patients, Tuberculosis Hospital	87
Total No. of cases treated as in-patients, Corporation Poor House	244

The use of surgical treatment continued to develop with a progressive increase in the number of cases who returned to their normal occupations in good health.

The cases who are admitted to the Poor House Wards are almost without exception those in whom the disease is pursuing an unfavourable course as shewn in Table XII.

Table XII.—Pulmonary Tuberculosis.

	Poor House Wards.	Hospital Wards.
Total admissions	244	87
Discharged Non-Tuberculous	13	
Transferred from Poor House to Hospital	37	
Died	129	35
Discharged at own request	20	5
Discharged improved	..	4
Still in on 31.12.35	45	43*

* 16 of these were in Hospital for the whole year.

In most of the other parishes Medical Officers of Health continued to maintain and develop regular dispensary service at various centres in their districts, 638 clinics having been held with a total attendance of 4,420 patients. These are well established in Manchester, Portland, St. Mary, St. Catherine and St. James where the Medical Officers of Health notified in 1935 respectively 65%, 42%, 31%, 19% and 16% of all cases reported.

X-Ray facilities are provided for District Clinics by means of an X-Ray Motor Unit. During 1935 it travelled 5,963 miles and took 1,942 pictures and the importance and volume of its work will increase as more surgical work is undertaken in the new wards to be provided at the hospitals.

Manchester records the greatest progress in dispensary and home service. The Medical Officer of Health attends at 16 different centres once a month, at which 1,419 persons attended during the year.

The Sanitary Inspectors devote special attention to infected families and the finding of new cases and the Local Branch of the Anti-Tuberculosis League is very active in educational work and assistance to families, with the result that the Medical Officer of Health notified 44 of the 59 cases recorded in his parish, although there are nine Medical Practitioners. A special feature is the assistance given by the League to infected families to build an additional room, if necessary, for accommodating the case and the Medical Officer of Health states that every known case is now provided with adequate means of isolation.

In larger health areas with other important problems of yaws, malaria and typhoid, it has not been possible for Medical Officers of Health to devote as much time to tuberculosis as in Manchester. Tuberculosis activities are particularly well organised in St. Catherine and St. Mary and are established on proper lines in all other parishes except St. Thomas, Clarendon and St. Elizabeth.

Nurses are provided by voluntary agencies for home supervision of infected families in the towns of Montego Bay and Spanish Town. In smaller towns and all rural areas this duty is carried out by Sanitary Inspectors who paid 3,627 visits to cases in 1935.

Research work was continued during the year as described in Sections VII and VIII of Part II of the Report.

Malaria—The following table shews a comparison over a 3-year period:—

Table XIII.—Malaria.

	1933.	1934.	1935.
Total deaths recorded	513	680	571
No. of in-paitents, Kingston Public Hospital	427	882	683
No. of deaths, Kingston Public Hospital	11	32	22
No. of in-patients, District Hospitals	4,536	4,088	2,800
No. of out-patients, District Hospitals	10,083	14,363	13,185
No. of deaths, District Hospitals	146	124	119

A low incidence of the disease prevailed during the first three-quarters of the year followed by an increase in the last quarter, particularly in Kingston, St. Andrew and St. Mary and to a less extent in St. Ann, St. Catherine and Portland.

An outbreak of epidemic proportions developed in association with the Moneague Lakes, but this was anticipated and there were no deaths.

Steady progress was made in developing anti-malarial measures not only by extending the areas under control but in substituting permanent instead of temporary measures notably in the swamp lands to the west of Kingston.

Free distribution of quinine was increased in areas where the disease gave indication of rising unduly, a total of 3,250 cases having been supplied through Sanitary Inspectors and employers of labour. Assistance was afforded to the Local Boards and large land owners to develop control programmes, and this policy is being followed as far as possible. In this manner new areas were put under control in Westmoreland,

St. James, St. Mary and St. Catherine with the assistance of the United Fruit Company, the Standard Fruit Company and the Local Boards of St. James and Westmoreland. The programmes provided by the United Fruit Company in Clarendon and the Sugar Estates in St. Thomas were further extended and improved.

The drainage of approximately 20 acres of swamp lands on Government property to the west of Kingston was completed during the year, and proposals are under consideration for reclamation schemes in the towns of Montego Bay, Port Maria and Black River, the funds to be provided under the New Loan Works

A detailed account will be found in the Report of the Malaria Officer in Section V of Part II of this Report.

Yaws—In the 1933 Report of the Medical Department the incidence of yaws as found in the Island Survey in 1932 was depicted in diagramatic map form; from which it is evident that the incidence is very closely associated with the rainfall. Not only is the incidence highest in the wet upland districts involving 50% of the population in uncontrolled areas and is uncommon in dry coastal districts, but relapses of quiescent cases and development of new cases occur most frequently in the rainy seasons.

The disease is also closely associated with overcrowding, lack of personal hygiene and absence of foot wear. Contact infection in the home is common and 90% of the cases acquire their infection before 15 years of age. Children of the middle and lower middle classes rarely get infected while among those of the upper classes it is unknown.

During 1935 the scheme was further developed of utilising in co-operation the existing permanent staffs of the Central and Local Medical and Sanitary Departments for less heavily infected areas, and making use of special mobile treatment units in areas of very high incidence where the amount of work to be done in the earlier stages cannot be overtaken quickly enough by existing permanent staff to produce easily recognisable reduction of incidence.

During the year the permanent sanitary staffs working in less heavily infected districts gained further experience and made progress in carrying out the plan of control laid down in 1933 and described in the report of that year. 12,615 cases were located in a population of 220,232, the infection rate varying in different districts from 1% to 25%.

The following data are taken from some parishes where the plan of control has been most developed and are illustrative of the effectiveness of the measures:—

Table XIV.—Yaws.

	Balcarres (Portland.)	Bybrook (Portland.)	Craighead (Manch.)	Duanvale (Trel.)	Deeside (Trel.)
Population of control area ..	4,465	3,218	2,500	1,390	945
Incidence of active yaws found at original Survey	14.9%	16.5%	8.8%	8.4%	16.9%
Incidence found at later Survey ..	3.4%	2.4%	5.3%	3.3%	4.4%
Interval between Surveys ..	12 mths.	12 mths.	12 mths.	12 mths.	12 mths.

An essential requirement for success being the attendance of cases for a regular and complete course of treatment, it is found necessary to take legal action under the Yaws Notification Law. In Portland 199 prosecutions were undertaken with the result that treatment was well carried out as shewn in the following table for the 6 control areas of Happy Grove, Manchioneal, Long Bay, Port Antonio, West Sherwood Forrest and Craigmill.

Table XV.—Yaws.

No. of cases found	726
No. who received 1st treatment	713
No. who received 2nd treatment	706
No. who received 3rd treatment	701
No. who received 4th treatment	653
No. who received 5th treatment	575

The original objects of the two Treatment Units of the Yaws Commission are summarised by Dr. Saunders, the Director, as (a) to demonstrate the practical measures of controlling yaws in highly infected areas, (b) to evaluate the comparative merits of Neo-arsphenamine and Bismuth Salicylate in treatment, and (c) to amass more information of the disease. During 1935 the units further confirmed the two findings of major practical importance, firstly that Bismuth is the drug of choice for mass control of yaws, and secondly that the plan of control as operated for the past two years does reduce the incidence of yaws very rapidly in a few months and the improvement is well maintained as long as its application is continued efficiently.

9 "Key" areas in the parish of St. Mary have been surveyed and treated at intervals of about 6 months for at least 18 months and the following table summarises the results of control over this period.

Table XVI—Yaws Control.

Approximate population of 9 "Key" areas	22,000
No. of infectious cases of Yaws found on 1st Survey	1,094
No. of infectious cases of Yaws found 6 months after 1st Survey	208
No. of infectious cases of Yaws found 12 months after 1st Survey ..	183
No. of infectious cases of Yaws found 18 months after 1st Survey ..	194
Certain of these areas have been followed up for 2 years with the following results:—	
No. of infectious cases found on 1st Survey	405
No. of infectious cases found 6 months later	101
No. of infectious cases found 12 months later	53
No. of infectious cases found 18 months later	119
No. of infectious cases found 24 months later	49

The effect of the control work is shewn by the improvement in school attendance for some schools in the area. The average monthly attendance for 6 years is set out in Table XVII.

Table XVII—Yaws.

School.	Average Monthly Attendance over 4 years period 1930-1933.	Average Monthly Attendance in 1934.	Average Monthly Attendance in 1935.
Scott's Hall	61	98	106
Mount Regale	106	137	160
Rock River ..	66	93	87
Clonmel ..	117	128	139
Brainerd ..	148	161	178
Belfield ..	186	214	217
Troja ..	99	120	117

Table XVIII shews the increasing amount of treatment being provided each year by the Department through the permanent staff and the two Mobile Treatment Units.

Table XVIII.—Yaws.

Year.	No. of Cases.	No. of Treatments.
1932 ..	Not known	33,338
1933	"	57,571
1934	27,005	116,654
1935	34,619	144,057

The Yaws Commission continued its research work, the chief items being the transmission of yaws by flies and the environmental factors influencing its transmission. Its work will be the subject of a Report which will be published separately.

Dysenteries.——Table XIX shews the number of notifications anually since 1931.

Table XIX.—Dysenteries.

Year.	Amoebic.	Bacillary.	Unclassified.	Total.
1931	..	..	58	58
1932	..	..	64	64
1933 ..	136	50	63	249
1934 ..	211	45	77	333
1935 ..	132	14	38	184

Of the 132 cases of Amoebic Dysentery, 45 were notified from the Mental Hospital and 30 from the General Penitentiary.

Leprosy.—Cases and Deaths recorded since 1926 are shewn in Table XX.

Table XX.—Leprosy.

Year.	Cases.	Deaths.	Death Rate per 100,000 population.
1926	16	10	1.1
1927	14	18	1.9
1928	18	13	1.4
1929	11	15	1.5
1930	37	15	1.5
1931	27	35	3.4
1932	23	16	1.5
1933	26	15	1.4
1934	29	10	0.9
1935	33	15	1.3

7 of the 33 cases in 1935 were notified from Clarendon, 6 from St. Catherine and 3 from Trelawny.

The Medical Attendant of the Lepers' Home reports that there were 39 admissions during the year, 31 of which were new cases. At the end of the year there were 149 inmates, 83 males and 66 females. 5 were discharged and 11 died. 5 absconded but 4 of these returned.

Although the available evidence indicates that the incidence of the disease is gradually diminishing and is now of minor importance, increased attention is being given to the supervision of cases and contacts with a view of reaching cases in the early stages for treatment, and to collect all possible epidemiological information.

Consideration is being given to transferring the Lepers' Home to a more suitable site and at the same time improving and enlarging the accommodation along more up-to-date lines.

Small Pox.—No cases occurred during the year but in view of outbreaks in neighbouring countries surveys were carried out on school children for evidence of successful vaccination with the following results:

Parish.	No. of Children examined.	Percent without vaccination scars.
Kingston	1,000	23.8
St. Andrew	1,009	8.2
St. Thomas	612	24.8
Portland	2,442	20.2
St. Mary	1,057	14.2
St. Ann	3,658	12.0
Trelawny	1,476	11.5
St. James	1,136	21.5
Hanover	1,032	17.1
Westmoreland	1,010	13.0
St. Elizabeth	not available	..
Manchester	1,201	11.3
Clarendon	1,895	11.7
St. Catherine	1,005	22.7

4. Water Supplies.

The only water supplies which are subjected to any method of purification are those of Kingston and Lower St. Andrew, Port Antonio, Spanish Town and Linstead. The bacteriological quality of the Kingston supply is examined several times a week and a very satisfactory standard of purity is constantly maintained. This is not true of the Spanish Town and Port Antonio supplies, samples from them being occasionally unsatisfactory.

No other piped supplies in the country have any provision for purification either by filtration or chlorination and, although efforts are made to protect them from surface pollution, these waters are not be to regarded as safe. The legal provisions for protection from pollution are inadequate in certain respects and the existing sanitary staffs are far too small to enforce reasonable safety of, for example, a stream for several miles of its course. Most of the spring and well supplies are from limestone districts and almost invariably shew bateriological evidence of gross faecal pollution. The only measure of real safety with the increasing density of population is the development of piped water schemes for rural townships and settlements such as the Dornock, the Linstead, the Highgate and Richmond supplies with purification by chlorination, the maintenance cost of which is trifling.

5.—Food Supplies.

2,605 sanitary inspections were paid to dairies, a large proportion of them being to dairies in the Corporate Area of Kingston and St. Andrew. Steady improvement is being obtained in this area in the bacteriological quality of milk as shewn by periodical examinations.

Progress is being made also in Trelawny and Manchester in dairy supervision, but elsewhere there are only very minor improvements to note. Montego Bay in particular is backward when its size and importance are considered.

There are no improvements to note in control and inspection of meat. Regulations are now under consideration for effective control throughout the Island but satisfactory results will depend on the provision of Parochial Slaughter Houses and adequate staff for meat inspection.

6. Maternity and Child Welfare.

A pre-natal out-patient department was completed at the Jubilee Maternity Hospital during the year.

The Children's Creche in Kingston maintained its activities on infant and Parochial pre-school work.

The School Hygiene programme so far consists of free Dental Service in the parishes of Kingston and St. Andrew, Portland, St. Mary, Trelawny, St. James, Hanover, Clarendon and St. Catherine and a School Medical Officer is provided by the Kingston and St. Andrew Corporation.

School Dental Clinics.—23,449 new children were examined as compared with 21,120 in 1934. 15,522 extractions and 14,667 fillings were recorded.

School Medical Work.—The Kingston and St. Andrew Corporation is the only Local Board provided with a School Medical Officer. During 1935 this officer completed examination of 16 schools.

The results are as follows:—

Total No. children examined	5,095
Total No. children with defects	72.8%
Total No. children with eye defects ..	46%
Total No. children with dental defects ..	35%

Over 25% of the children had granulated lids and about 5% were found with defective vision due in the great majority of cases to nutritional optic neuritis, very few to refractive errors.

Facilities are provided at the Kingston Public Hospital for correction of defects of school children in the Corporate Area. The School Medical Officer attends and obtains any necessary assistance from the staff of the Hospital. During the year 384 children had eye defects dealt with, 39 had tonsillectomies and 87 were treated for other conditions.

A very high percentage are regarded as suffering from malnutrition and the Medical Officer has obtained assistance from charitable sources to begin a programme of school lunches.

28% of the total cases of typhoid notified in the Corporate Area of Kingston and St. Andrew during 1935 occurred among children of school age, as compared with 38% in the previous year. Anti-typhoid inoculation of all school children would therefore be a most effective measure for total reduction of this disease.

7. Educational Measures.

During the year Volume 10 of the Jamaica Public Health was published, an edition of 20,000 copies being issued each month.

Over 765 lectures were given by Medical Officers of Health and Sanitary Inspectors to an attendance of 72,413 persons.

8. Recommendations.

1. More vigorous measures for the control of typhoid fever, the most urgent being (a) provision of pure water supplies by Parochial Boards, for the great majority of which chlorination is a necessary safeguard and (b) stricter enforcement of the Regulations of Local Boards of Health for construction and maintenance of latrines.

2. Execution of permanent drainage and filling work for malaria control to replace temporary anti-larval measures as far as possible.

3. Establishment of a School Medical Service. The Kingston and St. Andrew Corporation provides a special officer for school work and Medical Officers of Health in other parishes undertake certain activities for the health of the school child, particularly with respect to the control of yaws, typhoid fever and other communicable diseases, and the sanitation of schools. The scope and extent of their present duties do not, however, permit of their undertaking a regular school programme and consideration should be given to the provision of county school medical officers for this purpose.

4. Establishment of a branch Bacteriological Laboratory at Montego Bay.

5. Introduction of Housing Legislation.

6. For Montego Bay in view of its increasing importance as a tourist centre (a) purification of the water supply, (b) a sewerage system with a compulsory "sewered area," (a) more efficient enforcement of the Public Health Regulations with respect to milk and food supplies, mosquito breeding and sanitary conveniences, (d) housing schemes to relieve the overcrowding and unhealthy living conditions in certain tenement sections.

J. M. Hall,
Senior Sanitary Medical Officer.

IV.—PORT HEALTH WORK.

There was an outbreak of Alastrim in British Honduras during January and appropriate measures to prevent its importation here were at once taken.

On account of an outbreak of Small Pox in the interior of British Guiana, a long way from Georgetown, the principal seaport of British Guiana, vaccination requirements were required of all arrivals from Georgetown.

Sporadic cases of Yellow Fever continue to occur in the province of Meta at Restrepi, Republic of Colombia, and all arrivals from Bogota by plane or ship receive most careful inspection.

The invaluable use of wireless received a further demonstration early in the year. A vessel passing Jamaica on her way to Colon had one of her crew suddenly taken ill. The Captain wirelessed the symptom and the necessary medical instructions were promptly forwarded to him.

A practice had commenced of persons, neither passengers nor crew, going out on vessels, particularly the small ones and returning by the pilot boat. A new rule to stop this was passed by the Quarantine Board as if allowed to continue it might have very unfortunate results.

A large number of tourist vessels arrived. They were expeditiously dealt with and all other vessels received as prompt dispatch as possible.

Captain List returned from leave in January and resumed his duties as a member of the Board. Major Hallinan, C.B.E., the Chairman of the Board, went on leave in June and returned in October. Dr. J. M. Hall, Senior Sanitary Medical Officer was Acting Chairman during his absence.

Dr. McLean went on a short leave in September returning in October.

The Seaplane Service has worked very smoothly during the year. Each one being carefully inspected on arrival.

A new Seaplane Base is under construction at Harbour Head. It will enable the officers concerned to perform their duties more comfortably and give a nice appearance to what has bitherto been a desolate spot.

A new scale of fees for fumigation was approved by the Governor in Privy Council. The fees on small vessels have been considerably reduced and also on large ones when cyanide is the fumigant.

Vessels fumigated during 1935	.. ..	34
Vessels fumigated with H. C. N.	.. ..	28
Vessels fumigated with Sulphur	.. ..	6
Fees collected and lodged	£151	8s. 0d.

Charles Don,
Secretary, Quarantine Board.

V.—HOSPITALS AND DISPENSARIES.

The following is a list of the Hospitals and Institutions of the Medical Department:—

	No. of Beds.
Public Hospital, Kingston	380
Maternity Hospital, Kingston	100
Public Lunatic Asylum, Kingston	1,952
Public General Hospital, Morant Bay ..	30
Do. do. Hordley ..	40
Do. do. Port Antonio ..	55
Do. do. Buff Bay ..	50
Do. do. Annotto Bay ..	60
Do. do. Port Maria ..	65
Do. do. St. Ann's Bay .	40
Do. do. Cave Valley ..	12
Do. do. Falmouth ..	25
Do. do. Ulster Spring ..	6
Do. do. St. James's ..	70
Do. do. Lucea ..	30
Do. do. Sav.-la-Mar ..	66
Do. do. Black River ..	70
Do. do. Mandeville ..	35
Do. do. Chapelton ..	33
Do. do. Lionel Town ..	50
Do. do. Spanish Town ..	70
Do. do. Linstead ..	60
Lepers' Home, Spanish Town	120

The work of the hospitals shews a further increase over previous years as shewn below:—

	Kingston Public Hospital.			District Hospitals.		
	1933.	1934.	1935.	1933.	1934.	1935.
In-patients	7,351	8,133	8,269	19,149	23,067	23,346
Out-patients	162,257	171,318	162,311	63,892	94,960	105,705
Deaths . ..	821	742	698	1,156	1,110	1,216

During 1935, 15,106 major and minor operations were performed in the hospitals.

In the X-Ray Department of the Kingston Public Hospital, 3,105 patients were examined as compared with 2,293 in 1933 and 2,765 in 1934.

Out-Door Dispensaries.

Under the new ticket system there were 59,327 attendances of 29,320 patients at the Out-patient Departments of hospitals and at dispensaries in 1935, almost all of whom were treated free of charge.

Buildings.

The extensions of the Jubilee Maternity Hospital were completed so that the number of beds has been increased from 40 to 100 and a new out-patient Department was built for the Ante-natal work. With the provision of an Operating Theatre and all necessary staff and equipment this is now a thoroughly well arranged Hospital.

An old ward for the Black River Public General Hospital was demolished.

Apart from these improvements, the unsatisfactory state of Hospital buildings remains the same as was reported last year.

T. J. Hallinan,
Superintending Medical Officer.

(A) *Report and Return of the Medical Superintendent, Kingston Public Hospital.*

Table I and II show the number of cases during the year with results. The total deaths from all causes for the year was 698 (404 males and 294 females) showing a reduction of the death rate of 44 over the previous year.

Table III shows the number of deaths occurring within 12 and 72 hours after admission.

Table IV shows the number of patients admitted during the year and the countries and parishes in Jamaica from which these In-patients had their origin.

Table V gives in detail the number of medical and surgical cases treated for the year with results.

Table VI shows the surgical operations performed.

Table VII shows the work carried out in the Venereal Disease Clinic.

Table VIII gives the number of Casualties and Out-patients (including Eye, Ear, Nose and Throat and Orthopaedic Clinics) treated and the prescriptions dispensed.

Table IX shows the work performed in the Dental Clinic.

Table X shows the work of the Department of Radiology.

The figures under review show a decrease in the total number of Out-patients treated as compared with the previous year.

Enteric Fever shows a slight decrease; the incidence of malarial fever is still evident. There has been a noted increase of cases of broncho-pneumonia and pneumonia, especially the former in children. I am of opinion that this may be due to the weather conditions and lowered resistance.

Surgical operations performed have increased over the previous year.

Owing to the large numbers applying for surgical treatment in proportion to the limited capacity of the Surgical Unit, certain cases have to be placed on a waiting list.

Recommendations.

I understand that certain recommendations, which were made in last year's Report are to be put into operation, viz.:—

Operating Theatre,
Covered Ways, and
A new X-ray Machine.

Although the remainder may be under consideration, it would not be out of place to review them here:

An additional Assistant Matron with qualifications of a Sister Tutor.
New Wards in place of Alexandra, Victoria and Elizabeth Wards.
Enlargement of the Out-patients Department.

The increase in the medical and nursing staffs as recommended last year, has received attention.

A waiting room and office have been added to the Department of Radiology.

The Eye Clinic has now been completed and is in use. It has proved a great asset owing to the increased accommodation afforded.

Upper Rietti Ward has been reconditioned to the benefit and comfort of the patients.

The Jubilee Hospital is now accommodating a certain number of cases.

Miss E. S. White, Assistant Matron, resigned on 19th March. Miss G. Middleton was appointed to act on 20th March until the arrival of Miss J. A. Pollard on 23rd May.

Mr. M. J. Thomas, Chief Dispenser, was found unfit for further service by a Medical Board and Mr. C. A. Robinson was appointed to act on 8th October. I beg to record the satisfactory service given to this Institution by Mr. M. J. Thomas during his tenure of office.

27 nurses from the Kingston Hospital, 28 from the Country Hospitals and 3 from St. Joseph's Sanatorium passed their final examination.

Lectures to the nursing staff have been given by the Medical Officers, the Matron and Assistant Matron.

The Board of Visitors held their quarterly meetings and inspected the Institution.

I have to thank all those who have sent magazines, books, etc., for the use of the patients.

His Excellency the Governor and Lady Denham visited the Hospital on Christmas Eve and distributed toys to the children in Upper and Lower Nuttall Wards.

I have to record my appreciation of the loyal co-operation of the entire staff of the Institution in the performance of their duties during the year under review.

Table I.

	Males.	Females.	Total.
Patients remaining in hospital 1st January, 1935	213	152	365
Patients admitted during the year 1935 ..	4,226	3,678	7,904
Total patients treated	4,439	3,830	8,269
Of those were cured	2,102	2,015	4,117
Of those were relieved	1,520	1,160	2,680
Of those were not relieved	202	209	411
Of those died	404	294	698
Remaining in hospital December, 1935 ..	211	152	363
	4,439	3,830	8,269

Table II.

Daily average number of beds occupied by male patients	226
Daily average number of beds occupied by female patients ..	159
Average stay in days of those who died, males	9
Average stay in days of those who died, females	11
Average stay in days of males discharged	20
Average stay in days of females discharged	16
Average stay in days of males remaining at end of year	33
Average stay in days of females remaining at end of year ..	15
Longest stay of any one patient in hospital—days	365

Table III.

Patients who died within the following hours after admission:—

12		24		48		78		Total.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female	Male.	Female
69	53	69	54	41	19	33	27	212	153

Table IV.

Countries.	No.	Parishes.	No.
America ..	10	Kingston ..	5,011
Arabia ..	2	St. Andrew	2,712
Australia	2	Port Royal	24
Barbados ..	1	St. Thomas ..	68
Canada ..	1	Portland ..	37
China ..	12	St. Mary ..	36
Cuba ..	6	St. Ann ..	27
Denmark ..	1	St. James ..	9
England ..	53	Trelawny ..	16
France ..	1	Westmoreland	6
Germany ..	5	St. Elizabeth	14
Grand Cayman ..	9	Manchester	28
Haiti ..	1	Clarendon ..	41
India ..	11	St. Catherine	122
Ireland ..	3	Hanover ..	3
Jamaica ..	8,128	Foreign ..	115
Norway ..	14		
Panama ..	2		
Santo Domingo ..	1		
Spain ..	3		
Syria ..	3		
	8,269		8,269

Table V.—Diseases and Deaths in the Public Hospital, Kingston, during 1935.

	Cases.	Deaths.
Epidemic, Endemic and Infectious Diseases—		
Enteric Fever	277	62
Malaria Fever	683	22
Measles	7	
Whooping Cough	4	
Diphtheria	1	
Influenza	29	
Mumps	1	
Dengue Fever	1	
Miliary Fever	1	1
Dysentery:		
(a) Amoebic	33	5
(b) Other or unspecified	3	2
Yaws	7	
Erysipelas	1	
Acute Poliomyelitis	4	
Chicken Pox	3	
Tetanus	16	10
Actinomycosis	1	
Tuberculosis (all forms):		
Respiratory System	173	15
Intestines and Peritoneum	17	9
Vertebral Column	10	1
Joints	11	1
Other Organs	25	1
Syphilis	1,209	13
Congenital Syphilis	18	8
Gonococcal Infection	211	1
Gonorrhoeal Ophthalmia	11	
Septicaemia	3	2

	Cases.	Deaths.
II. *General Diseases not included in I—*		
Cancer:		
Pharynx, Oesophagus, Stomach, Liver and Annexa	45	14
Peritoneum, Intestines, Rectum	8	3
Female Genital Organs	31	6
Breast	10	1
Skin	5	
Other or unspecified Organs	10	3
Tumours not returned as malignant (Brain and female Genital Organs excepted)	29	
Rheumatic Fever	18	
Chronic Rheumatism and Arthritis	5	
Pellagra	4	1
Rickets	4	4
Diabetes Mellitus	50	11
Anaemia—Chlorosis, Pernicious and other Anaemias	12	2
Exophthalmic Goitre	1	
Other diseases of the Thyroid Gland	12	
Diseases of the Thymus Gland	2	
Diseases of the Spleen	3	
Leukaemia, Lymphadenoma	3	1
Alcoholism (acute or chronic)	4	
Chronic poisoning by mineral substances	5	1
III. *Diseases of the Nervous System, etc.—*		
Cerebral Abscess	2	2
Meningitis	11	9
Tabes Dorsalis	13	
Other diseases of the Spinal Cord	1	
Cerebral Hæmorrhage	29	20
Cerebral Thrombosis	1	1
Hemiplegia	30	3
Other forms of paralysis	6	
Other forms of insanity	4	
Epilepsy	14	1
Convulsions (non-puerperal)	19	5
Chorea	1	
Hysteria	12	
Neuritis	32	
Other Diseases of the Nervous System:		
Idiocy	1	
Paralysis agitans	1	
Disseminated Sclerosis	1	
Other diseases included under 84	16	5
Diseases of the eye and annexa	203	1
Diseases of the ear and mastoid sinus:		
Diseases of the mastoid sinus	4	
Diseases of the ear	15	
IV. *Diseases of the Circulatory System—*		
Pericarditis	3	
Acute Endocarditis and Myocarditis:		
Endocarditis	24	4
Myocarditis	42	17
Angina Pectoris	2	1
Other diseases of the Heart:		
(1) Aortic Valve disease	20	6
(2) Mitral Valve disease	17	2
(3) Aortic and Mitral	31	12
(4) Dilation of Heart	4	4
(5) Heart diseases undefined	8	4
Diseases of the Arteries:		
Aneurysm	6	2
Arterio-sclerosis	1	
Embolism and Thrombosis (not cerebral)	3	1
Diseases of the Veins	67	
Diseases of the Lymphatic System	186	
Hæmorrhage without stated cause	13	
Other diseases of the Circulatory System	3	
V. *Diseases of the Respiratory System—*		
Diseases of the nasal foseæ and annexa:		
(1) Disease of the nose	2	
(2) Diseases of the accessory nasal sinuses	32	
Bronchitis:		
(a) Acute Bronchitis	7	1
(b) Chronic Bronchitis	163	2

	Cases.	Deaths.
Broncho-pneumonia	187	58
Lobar pneumonia	112	27
Pneumonia (not defined)	69	22
Pleurisy:		
Empyema	3	1
Other Pleurisy	33	1
Congestion and Hæmorrhagic infarct of lung	1	
Asthma	19	2
Other Diseases of Respiratory System	8	
VI. *Diseases of the Digestive System—*		
Diseases of buccal cavity and annexa	35	
Tonsillitis and adenoid vegetation	82	1
Ulcer of Stomach	49	7
Ulcer of Duodenum	15	2
Inflammation of Stomach	68	
Other diseases	25	4
Colitis	51	5
Other diseases	105	23
Ankylostomiasis	30	
Diseases due to other intestinal parasites	11	2
Appendicitis	462	5
Appendix abscess	37	6
Hernia	190	7
Intestinal obstruction	20	10
Other diseases of the Intestines:		
Intestinal Stasis	58	
Other Diseases	55	3
Cirrhosis of Liver (not returned as alcoholic)	31	10
Biliary Calculi	4	1
Other diseases of the Liver	65	9
Diseases of the Pancreas	2	1
Peritonitis without stated cause	17	8
VII. *Non-Venereal Diseases of the Genito-Urinal System and Annexa—*		
Acute Nephritis (under 10 years)	11	6
Chronic Nephritis	109	32
Other diseases of the Kidney and annexa	166	41
Calculi of the Urinary System	8	1
Cystitis	66	5
Other diseases of the Bladder	5	
Diseases of the Urethra:		
(1) Stricture of the Urethra	35	3
(2) Other diseases of the Urethra	43	4
Disease of the Prostate	21	5
Non-Venereal diseases of the male Genital Organs	132	
Cysts and other tumours of ovary not returned as malignant	36	
Salpingitis and pelvic abscess:		
(1) Salpingitis	184	5
(2) Pelvic abscess	72	5
Tumours of uterus not returned as malignant	150	6
Non-puerperal uterine hæmorrhage	27	
Other diseases of the Uterus	190	1
Diseases of other Female Genital Organs not included under other headings	13	
Non-puerperal disease of breast	16	
Accidents of Pregnancy:		
(a) Abortion	97	
(b) Ectopic	23	1
(c) Other accidents of pregnancy	28	1
Other accidents of Childbirth	15	1
Puerperal Sepsis	2	1
Puerperal Albuminuria and Convulsions	7	3
IX. *Diseases of Skin and Cellular Tissue—*		
Gangrene	5	3
Carbuncle and boil	19	
Cellulitis	30	1
Abscess	65	
Other diseases of the skin and annexa:		
Ulcer and bed sore	121	1
Eczema	19	
Other diseases	139	2

	Cases.	Deaths.
X. *Diseases of the Bones and Organs of Locomotion—*		
(1) Acute Osteomyelitis and Periostitis	46	
(2) Other diseases of the bones	6	
Diseases of the Joints	13	
Amputations	39	1
Other diseases of the Organs of Locomotion	49	1
Other congenital malformations	6	
Congenital debility and Sclerema	34	18
Diseases of the umbilicus	3	2
Senile dementia	5	
Debility	34	2
Food poisoning	2	1
Acute accidental poisoning (not by gas)	19	3
Accidental burns	97	11
Accidental injury by firearms	7	
Accidental injury by piercing or cutting instruments	65	
Accidental injury by fall	98	
Accidental injury by other forms of crushing	269	1
Fractures	273	10
Ill defined causes	138	6
	8,972	698
Death Rate	7.7%	

Table VI.

	Cases.
1. *Operations upon the Female Genital Organs—*	
Pan Hysterectomy	7
Total Hysterectomy	3
Sub-total Hysterectomy	103
Vaginal Hysterectomy	3
Myomectomy	9
Salpingectomy	99
Salpingo-oophorectomy	106
Draining pyosalpinx	13
Oophorectomy	9
Ovariotomy	19
Ovarian Cyst	15
Draining Ovarian Cyst	4
Draining Broad Ligament Cyst	10
Draining Broad Ligament Abscess	8
Draining Pelvic Abscess	8
Ectopic Gestation	23
Uterine Suspension	10
Curettage	78
Dilation of Cervix	3
Perineorrphaphy	3
Colporrhaphy	3
Removal of uterine polypi	2
Removal of cervical polypi	2
Therapeutic abortion	1
Repair of Recto-vaginal fistula	2
Repair of Vesico-vaginal fistula	2
Operation for imperforate Vagina	1
Operation for imperforate Hymen	2
Diathermy to Cervix	19
Gilliam's Operation	3
Excision of Bartholin Cyst	8
2. *Operations on Hernia—*	
Radical cure	139
Irreducable Hernia	1
Obstructed Hernia	4
Umbilical Hernia	3
Strangulated Hernia	11
Ventral Hernia	2
3. *Operations for Appendicitis—*	
Appendicectomy	447
Appendix abscess	37
4. *Operations upon the Stomach and Intestines—*	
Perforation of Gastric Ulcer	1
Perforation of Duodenal Ulcer	2
Laparotomy for Volvulus	6
Laparotomy for Intestinal Obstruction	3
Gastro-enterostomy	7
Gastrotomy	7

	Cases.
Laparotomy for perforation of small intestine	2
Colostomy	7
Exploratory laparotomy	38
Laparotomy for Tubercular peritonitis	13
Closure of fæcal fistula	1
5. *Splenectomy for ruptured Spleen*	1
6. *Operations on the Kidneys and Bladder—*	
Nephrectomy	7
Supra Pubic Lithotomy	2
Supra Pubic Cystostomy	15
Supra Pubic Prostatectomy	1
Excision of Diverticulum of Bladder	1
Cystoscopy	6
7. *Operations on the Penis and Urethra—*	
Amputation of Penis	4
Circumcisions	122
Dilating urethral stricture	51
Dilating Prepuce	3
8. *Operations on the Testicle and Scrotum—*	
Orchidectomy	3
Radical cure for Hydrocele	13
Varicocele	2
9. *Operations on Rectum and Anus—*	
Hæmorroidectomy	45
Injections of Hæmorrhoids	2
Rectal polypi	2
Anal fistulae	7
Dilating rectal stricture	23
Sigmoidoscopy	1
10. *Amputations—*	
Legs	7
Toes	20
Fingers	13
11. *Operations on the Thorax—*	
Amputations of breast for malignancy	8
Adenoma of breast	13
Empyema—Resection of Rib	2
12. *Operations upon the Ear—*	
Radical cure for Mastoid	6
Conservative operation for Mastoid	1
Removal of Polyp of the Ear	1
13. *Operations on the Nose—*	
Removal of Adenoids	377
Tonsillectomy	586
Enucleation of Tonsils	15
Peritonsillar abscess	2
Nasal Polyp	40
14. *Tracheotomy*	1
15. *Operation for Cleft Palate*	4
16. *Operations on Tendons—*	
Suturing Tendons	17
Tenotomy	1
17. *Operations on Antrum and Frontal Sinus*	24
18. *Ophthalmic Operations—*	
Extraction of cataract	26
Needling cataract	91
Scleral Trephine	3
Needling capsule	31
Iridectomy	26
Incision of cornea	3
Enucleation of eyeball	31
Meibomian Cysts	101
Pterygium	90
Ectropion	2
Lachrymal Apparatus	14
Operation for squint	1
19. *Operations on Infections of Bones—*	
Osteomyelitis	40
Sequestrotomy	16
Osteotomy	1
Excision of Coccyx	1
Subperiosteal resection for Osteomyelitis	11
20. *Dislocations*	4
21. *Trephining Skull*	2

	Cases.
22. *Fractures of Bones*—	
Plating Fractures	2
Wiring Fractures	15
Bone Graft	1
Open operation for Fractures	11
23. *Operations on the Thyroid Gland*—	
Thyroidectomy	3
Excision of Thyroid Cyst	1
24. *Operations upon Liver and Gall Bladder*—	
Cholecystectomy	1
Cholecystostomy	2
25. *Excision of Glands*—	
Cervical	3
Inguinal	55
Axilla	1
26. *Incision of Abscess*	3
Removal of foreign bodies (bullets, needles, etc.)	40
Examinations	92
Excision of Toe Nail	57
Excision of Lipoma	15
Excision of Epulis	3
Excision of Carbuncle	8
Excision of Epithelioma	4
Excision of Keloid	3
Excision of Bursae	10
Excision of Finger Nail	6
Breaking down adhesions	7
Baker's Cyst	1
Skin Graft	3
Ligature of arteries	2
Operations for Club foot	3
Phrenicectomy	80
Diathermy Therapy	37
Scraping Sinus	2
	3,723

Table VII.—Return showing the work done at the Venereal Diseases Clinic at the Kingston Public Hospital, during the year 1935.

No. of Salvarsan Injections.	No. of Bismuth Sal. Injections.	No. of Gonococcic Vaccines.	No. of Patients treated with Salvarsan.	Tartar Emetic.	No. of treatments given for Venereal Diseases.	No. of Admissions to V.D. Wards.		No. of Discharges from V.D. Wards.		No. of cases dressed and irrigated.		No. of Operations Performed.	No. of Prescriptions, Lotions, etc. dispensed.	
						Males.	Females.	Males.	Females.	Males.	Females.		Wards	O. Ps.
13,976	15,552	1,432	12,694	194	12,694	490	489	454	412	14,011	1,294	279	6,367	18,529

Table VIII.

No. of patients treated with tickets from authorised persons	4,239
No. of prescriptions for the above	20,488
No. of patients treated without tickets	141,924
No. of prescriptions for patients without tickets	54,934
Eye, Ear, Nose and Throat Clinic	8,308
Orthopaedic Clinic	7,840
Total number of Out-patients treated for 1935	162,311
Minor Operations	8,276
Motor Car Cases	889
No. of prescriptions for Constabulary	795
No. of prescriptions for V. J. Hospital	891
No. of prescriptions for Ante-Natal Clinic	556
No. of prescriptions for T. B. Hospital	1,049
No. of prescriptions for School Clinic	11,503
No. of prescriptions for Railway	71
No. of prescriptions for Female V. D. Clinic	80
No. of prescriptions for Farm School	21

A. S. Westmorland,
Medical Superintendent, Public Hospital, Kingston.

Table IX.—Summary of work performed at the Dental Clinic attached to the Public Hospital, Kingston.

No. of patients attended	5,569
No. of Extractions	7,326
No. of Mouth Washes given	149
No. of Treatments	38
No. of Cleanings	6
No. of removal Necro Process	15
No. of Minor Operations	8

S. C. DePass,
Surgeon Dentist, Public Hospital, Kingston.

Table X.—*Radiology Department.*

No. of patients X-rayed from January 1st to December 31st, 1935	3,105
No. of Gastro-intestinal series	210
No. of Gall Bladders	62
No. of Urinary Tracts	142
No. of Fractures	1,950
No. of Chests	541
No. of Sinuses	200

H. L. Henriques,
Acting Radilogist, Public Hospital, Kingston.

(B) *Report and Returns of the Visiting Surgeon, Jubilee Maternity Hospital.*

Admissions.—1,551 (including re-admissions). Of these 431 were married and 1,120 single women.
Deliveries.—1,325. 1,219 were live births (53 premature) 94 dead and still-born and 12 miscarriages. 1166 of the live births were full term. 1,281 were spontaneous and 44 were operative deliveries.

Deaths.—14 Maternal. These are as follows:—
5 Eclampsia
2 Post Partum Haemorrhage
2 Cardio-renal Disease
1 Nephritis
2 Debility after childbirth
I Uræmia
1 General Peritonitis

There were 38 Infantile Deaths as follows:—
1 Jaundice, with deficient vitality
3 Cerebral Hæmorrhage
23 Deficient Vitality
3 Asphyxia
1 Convulsions
6 Congenital Syphilis
1 Hæmophilia

The maternal abnormalities were as under:—
575 cases of Albuminuria, of which 369 were in a condition of eclampsism, and 24 in a condition of eclampsia. 422 were discharged as free of the condition.
47 cases of Hæmorrhages (Ante and Post Partum). Of these 11 were from Placenta Praevia, 7 were Accidental Hæmorrhages.
4 Adherent Placenta
13 Anatomical abnormalities of Placenta
3 Vesicular Mole
9 Hydramnios
19 Mal Presentations
5 Disproportion
4 Physometra
1 Typhoid
1 Chicken Pox
Several cases of Malaria Fever.

Two patients were transferred to the Public Hospital for surgical treatment.

The Foetal Abnormalities and Complications were as under:—
4 Monsters (including one case of Siamese Twins)
2 Spina Bifida
4 Talipes
3 Dropped Wrist
3 Haemophilia
3 Cleft Palate
2 Pre-natal fracture of Clavicle
2 Infants born with one or more teeth
1 Abdominal viscera in umbilical sac
15 Opthalmia Neonatorum
56 Extra fingers and toes.

34 pupil nurses were admitted for training as midwives. Of these 16 satisfied the Examiners under the Midwifery Law. 29 have not yet completed the course.

The attendances at the Pre-Natal Clinic during the year were 1,849. Of these, 516 were for Albuminuria, other ailments were negligible. There were 1,166 specimens of Placental Blood tested, of these 171 were Khan Positive. Of 292 specimens of Venous Blood tested, 74 were Khan Positive.

In submitting this Report, attention is invited to the enormous incidence of Albuminuria, simulating recurring decimals. It is to be hoped that the educational value of the Pre-Natal Clinic will in due course alter this undesirable state of affairs as well as reduce the number of moribund cases sent to hospital from time to time when but little can be done for them.

The extension to this Institution was opened to the public on the 1st July.

His Excellency the Governor and Lady Denham visited the hospital on Christmas Eve and kindly distributed the gifts to patients.

The nurses dinner and entertainment on Boxing Day, were successful.

E. V. W. Mellad,
Visiting Surgeon, Jubilee Maternity Hospital.

(C) *Report and Return of the Medical Superintendent, Lunatic Asylum.*

On 31st December, 1935, there were 1,990 patients under treatment and care in the Institution, of this number 980 were males and 1,010 females. The daily average number during the year was 1,952 and the highest number requiring to be accommodated on any one day was 1,990. The total number of patients who received treatment during the year was 2,476.

In view of the fact that during 1934, vide Report for that year, the daily average number of patients had increased by 47 and that during 1935 by a further 67, it is obvious that this Institution which is built to accommodate 1,750 patients is still becoming more and more overcrowded, this overcrowding is not confined only to sleeping accommodation but to Latrine and Airing Courts; further and lastly a very important point arises, namely, that the female and male nursing staff remains inadequate for the proper and adequate treatment also supervision of the patients. This persistent annual increase in the number of insane patients is, I submit, remaining a very grave problem.

Admissions and Discharges.

During the year 544 patients were admitted—males 255, females 289; whilst 486 were discharged or died—males 238, females 248. Of the discharges 138 were sent away as "recovered," and 117 as "relieved." 4 male patients escaped, 3 of whom were recaptured and the fourth who is known to be an habitual ganja addict again fell into the hands of the Police; one female patient escaped and was recaptured. 3 patients were sent to the Public Hospital, Kingston, for major surgical operations all of whom returned, also one who was sent there in the previous year. 4 infants were born, 2 of whom died, 1 was discharged to the care of his mother and the other was discharged to the care of the Poor Law Authorities, Kingston.

The percentage of cases discharged "recovered" as based on the number of admissions during the year was 25.37, whilst that of cases discharged "relieved" similarly based was 21.51.

All cases discharged "relieved" except Epileptics, the latter being always considered as potential relapses, had been in the Asylum before.

In as far as the Lunacy rate of the whole colony is concerned it is unfortunate that no exact figures can be given, this because the Registrar General is not yet able to give me figures for the estimated population of Jamaica in 1935. It may however be said from observations that the Lunacy rate per 1,000 persons is not actually on the increase, but that it is increasing in proportion as the population goes. Approximately I would put the Lunacy rate for the colony at between 1.7 and 1.9.

Death Rate.

219 patients died, males 114, females 105, a decrease of 10 as compared with the death rate for 1934; the percentage of deaths as compared with the daily average number of patients under treatment is therefore 11.22, a decrease in spite of the increase in numbers.

The principal causes of death were among females, pneumonia, pulmonary tuberculosis and cardiac diseases; chronic pellagra again takes fourth place as a cause. Among males demential paralytica—37 having succumbed to this disease—pulmonary tuberculosis and pneumonia.

Other causes are shown in statistical tables.

From the foregoing it is obvious that in as far as males are concerned syphilis is one of the principal causes of insanity and that pulmonary tuberculosis still remains rife among both sexes, this also as a cause of insanity, and also that pellagra is a cause of insanity.

Principal Types of Mental Disorders Admitted.

Among females the predominant type of mental disorder still remains the same, namely that of Manic Depressive type. In many cases the cause can definitely be stated to be due to Physical Exhaustion. Primary Dementia is still predominant.

Among the males Neuro Syphilitic cases including Dementia Paralytica are still common. It must again be stated that Primary Dementia accounts for many admissions. The Manic Depressive group especially Acute Mania, must be noted as one of the principal types of insanity.

Principal Causes of Insanity.

The principal causes of insanity remain as in past years, Heredity, Consanguinity and Syphilis, and it has been noticed in particular during this year that several patients have been admitted in a very poor

physical condition, these all showing symptoms of Exhaustion Psychoses. The cause is attributable to either an insufficient diet or one of poor quality. Malaria, Pellagra and Ankylostomiasis are again responsible for similar conditions.

There is no doubt that ganja is still a cause of insanity.

Scientific.

Autopsies were held on the bodies of 89 males and 105 females; the value of such examinations was again much in evidence. As in the past an Officer of the Rockefeller Foundation attended all autopsies Dr. Flahiff has been a keen observer this year and from him we have gathered valuable knowledge in connection with lesions of the lungs. Two very interesting cases of malignant disease, one a cancerous condition of the liver and the other a sarcoma in the Mediastenum were found, in both cases the disorder mentioned had been suspected Ante Mortem and the Post Mortem confirmed the diagnosis. Another interesting case found at the Post Mortem was that of a Pathological Rupture of the Heart consequent upon an Infarction of the wall of the Left Ventricle.

There was, I am glad to report, only one death from violence, and that by accident, on which the Police Surgeon had to carry out the Post Mortem Examination. This was a case of an Epileptic who had climbed the door and railings of his room and then fell backwards from a height of about 8 ft.; the examination revealed that both the 1st and 2nd Cervical Vertebrae had been fractured.

The results of Wasserman and Kahn reactions carried out in the cases of 176 males and 239 females were males 70, females 62.

Out of 544 patients admitted during the year Wassermann examinations were carried out in the cases of 176 males and 239 females, a total of 415, the remaining 129 being too resistive for the tests to be carried out.

Lumbar puncture has been performed in several cases and in future this means of diagnosis will be carried out in all cases of suspected and obvious Neuro Syphilis.

Again the Lunatic Asylum has to thank the Government Laboratory and the Yaws Commission for their able and cheerful co-operation in this branch of Mental Hospital practice.

Malaria.

During the latter part of the year numerous cases of malaria developed the majority being infected by P. Falciparum, a few P. Vivax, and one case of P. Malaria which clinically was typical of Quartan Fever and occurred in a nurse.

In all cases admitted in as far as possible blood films have been taken to discover the presence of malaria, and during the latter part of the year numerous cases of malaria developed. Out of 266 films submitted for female patients 27 were found positive and in males out of 213, 38 positive.

Anti-malarial work has been carried out, oiling of stagnant pools in gullies, careful observation of dumps where old tins, etc., accumulate, but in spite of this one site heavily infected by Anopheles was found by Dr. Aris of the Malaria Commission. It may however be said that this site was not the primary breeding ground but that the mosquitoes reach the Asylum from pools and stagnant water in the Rockfort area to the east of the Asylum.

The gullies entering from the Windward Road which run along the northern boundary of the Hospital are a nuisance because of sullage water continually entering; the S.S.M.O. has inspected same and recommendations have been submitted for the complete paving and canalization of these gullies.

Infections of the Entire Group.

Dysentery A. & B.—Dysentery (Amoebic) has been found in 39 female patients out of 104 stools examined and in 6 male patients out of 94 stools examined.

Treatment by Yatren or Quinoxyl an equivalent appears to be the most satisfactory.

Dysentery (Bacilliary was rare; males 0, females 1.

Ankylostomiasis.—Out of 85 female cases examined, 44 positive, and out of 79 males, 21 positive.

Treatment with Chenopodium has been found to be the most efficacious.

Typhoid Group.—Cases of true typhoid were rare, this because every patient on admission is inoculated against the disease and all chronic patients biennially.

Out of 13 specimens of blood of females sent for examination 6 were positive, and out of 12 males, 2 were positive.

Pellagra.—Pellagra was still markedly in evidence but as has been pointed out in previous reports the disorder has been acquired prior to admission. The treatment by the exhibition of raw tomatoes in the diet of such cases is of undoubted value. The use entirely of brown rice plays an important part in keeping the incidence of the disorder appearing after admission nil, this combined with an abundant supply of fresh vegetables. In all cases in which death was accounted for by Pellagra the usual intestinal lesions were in evidence.

Pneumonia.—Pneumonia mostly of the lobar type accounted for the death of 9 males and 19 females, the incidence being particularly noticeable in the early part of the year.

Pulmonary Tuberculosis.—Pulmonary Tuberculosis was also a prevalent cause of death and in all cases diagnosis was confirmed by Post Mortem Examination. Males 11, females 17.

Report from the Officers of the Rockefeller Foundation in connection with Tuberculosis.

The routine intracutaneous tuberculin tests were continued as usual during the year on newly admitted patients. 433 patients received tuberculin tests. Of these, 281 reacted positively to tuberculin. 152 patients were negative to tuberculin. Of this negative group, 72 received intracutaneous vaccinations with heat-killed tubercle bacilli. These vaccinations are intended to produce immunity against tuberculosis. 78 were controls for this vaccinated group. The other two negative individuals were not suitable for either

group. Repeated tuberculin tests, every three months, have been done on all old and new vaccinated and control cases, to observe any change in their tuberculin reaction.

The attempt has been continued to take chest X-rays of all new admissions who were not too excited. During the year, 442 new admissions were X-rayed among whom 10 cases of open tuberculosis and 28 latent lesions were found. This ensured early isolation of the infected individuals. A further group of 374 old patients received a total of 884 X-ray examinations for one of three reasons: (1) by the request of members of the medical staff; (2) because earlier X-ray were suspicious; or (3) because they were in the vaccinated or control groups. These latter two groups are being closely followed to learn whether or not they are in more danger of infection than the tuberculin positive admissions.

Autopsies have been done on as many cases as possible who have died in the institution. 192 pairs of lungs were obtained during the year for X-ray study and careful post mortem dissection.

This work has progressed most favourably during the year and it has been possible to tuberculin test and X-ray a much higher percentage of new admissions than in former years.

New Works and Repairs.

During the year the old F Range (a wooden structure) in the male division was entirely reconditioned on modern lines both in connection with bed space and sanitation, this however except for improving the conditions of the patients who were accommodated in the old ward has not relieved overcrowding.

A new ward in the female division is in the course of erection and will, it is hoped, be completed within the next two months.

A full scheme has been submitted for the further relief of overcrowding, this scheme to embrace 300 beds.

The roofs of three verandahs and one dining hall in the female division have been reconditioned.

A new dining shelter has been erected in H. Ward, female division, this constructed entirely by Asylum labour and most of the structure made out of the remnants of the old F Ward, male division.

The Porter's Lodge at the lower end of Paradise Street has also been reconditioned.

The quarters formerly occupied by the First Assistant Medical Officer in as far as the main building is concerned have been reconditioned and painted throughout, but little has yet been done in connection with the kitchen and servants quarters attached thereto.

Corridors between B and C and between D and E. Wards, female division, have now been enclosed, materials used also having been obtained from the demolition of the reconditioned ward in the male division.

Quarters which are allocated for the use of the Clerk and Purveyor have been reconditioned and painted throughout.

The ceiling of the Linen Store has been raised, the framework of same having been renewed with the result that the said store is much more airy though still unsatisfactory as a store.

It is hoped that something will be done in connection with the Provision Store attached to the same building during 1936.

The steel roof of the main entrance has been repainted and the outer surface of the said roof protected against the erosion of the weather.

An obsolete latrine in B Ward, female division, has been modernised.

Three new manholes on the sewers in the male division have been constructed, this in order to enable more convenience in cleansing the said sewers.

A great deal of pointing, patching, painting, repairs to gutters and other minor works have been done during the year; a considerable amount of this by means of Asylum labour and out of Asylum funds.

I may lastly mentioned that in as far as possible all minor works are carried out by the artisans with the assistance of patients, thereby relieving the Public Works Department of a considerable amount of work. Mr. Spence, Superintendent of Public Works, Kingston, has done all in his power to co-operate in connection with the carrying out of minor works.

Water Supply and Sanitation.

The water pressure continues very low, this throughout the whole of the Asylum, and towards the end of the year became particularly noticeable in the female division, conditions in the male division remaining the same.

After a consultation with the Superintendent of the Fire Brigade, Kingston, it was decided that until the water pressure could be used for fire purposes it would be no good to rely upon water for extinguishing a big fire unless same could be obtained from the harbour. Immediate outbreaks would therefore have to be met by the use of hand extinguishers with which the Asylum is very well equipped.

It still remains difficult to arrange for the proper bathing of patients, cleansing of wards and the flushing of water closets.

The sewerage system still remains unsatisfactory for three reasons:

(1) That the Hospital has increased to such an extent that the present sewers cannot possibly deal with the sewage of an institution of this nature, this because patients will insist upon, this in spite of all observation, putting every possible imaginable article into the sewers which causes chokes.

(2) The main outfall into the Kingston sewers is a 7″ main and cannot be enlarged until such time as the Kingston and St. Andrew Corporation enlarge their sewers.

(3) In many parts of the Asylum the fall in the sewers is infinitesimal.

All the above factors result in frequent choking of the main sewer.

Farm and Grounds.

In spite of all efforts it is regretted that the produce from the farm and gardens has not come up to expectations, but this is not the fault of those who are employed in this occupation. All engaged have done their best under very adverse circumstances, namely, drought at the beginning of the year and storm and high winds in the latter part of the year.

In 1934 approximately twenty-four tons of vegetables and fruits were produced and in 1935 approximately thirteen tons, all workers however are to be congratulated. Taking an average of the price of the types of vegetables as supplied under contract, the value of vegetables supplied from the Asylum gardens was approximately £165.

Sheep have done well on the whole and the Poultry Farm has paid for itself: eggs 212 dozen, chickens for special cases, 30 lbs.

Roads which were badly damaged by storms in the latter part of the year have been in as far as possible repaired and it must be mentioned that had it not been for storms, the usual vote Item Farm and Grounds and Repairs, the money having to be spent on repairs, would have been used for more economic purposes.

A quantity of old wood has been cut for fire wood and economy has been effected by means of using up old rubbish, etc., as fuel.

The gross value derived from farm and gardening operations, including manure and divi divi, can be calculated as being £260 19s. 7d. for the year as against £422 19s. 8d. for 1934. Of the £260 19s. 7d. the sum of £60 16s. 0d. went to General Revenue, while £163 14s. 7d. represented the value of farm products used for dietary purposes, thereby effecting a saving on Item 21. The balance, viz., £36 9s. 0d. was credited to Patients' Fund in accordance with Regulations governing that fund.

The following sums paid to the Asylum for work done were also collected:—

(a) For Laundry Work for the Public Hospital, Kingston ..	£114	17	6
(b) For making Straw Brooms for the Public Hospital, Kingston	1	12	8
(c) For making Floor Polish for the Public Hospital, Kingston	2	12	0

which amount was refunded to Item 30—Washing and Sanitary Arrangements.

£52 4s. 4d. of the total sum of £114 17s. 6d. received for washing done for the Public Hospital, Kingston, was also lodged to the credit of Miscellaneous Revenue, and the balance credited to the Patients' Fund.

The Asylum continues to make straw brooms, brass polish and fly killer for itself, also all clothing and bedding, except blankets, for non-contributing patients, and all table (except spoons) and sanitary utensils for the same class, and also supplies the Public General Hospital with straw brooms and floor polish.

The reason why the Asylum has again saved on expenditure to the Government is that the workshops, laundry and sewing room remain efficient. The amount of repair work especially in respect of clothing and bedding is saving much money. The Matron for her interest in the matter of repairs must be commended, also the Chief Attendant, while the Chief Artisan and his staff have done excellent work in respect of minor repairs to buildings, carts, drains, etc.

The workshops have again proved their value both from a therapeutic and economic standpoint.

Board of Visitors.

The Board of Visitors formally met on the usual dates appointed for its meetings; the principal topic discussed was the question of the persisting overcrowded state of the Hospital. Another matter discussed was that of bringing the existing laws in connection with persons of unsound mind into line with those in vogue in England; as a result of this I attended on His Excellency the Governor on the 19th July and the whole question was thoroughly discussed; the result of this interview is that a Bill is being prepared for presentation for consideration by the Honourable Legislative Council, which Bill it is hoped, will be passed at the Spring Session of 1936.

It would be appreciated if the members of the Board paid more individual visits; the Very Revd. Father Kelly, S.J., V. C. Alexander, Esq., and Mrs. J. B. Stiven excepted, the members mentioned always do their duty when their names are on the visiting Roster.

The death of J. M. Nethersole, Esq., C.B.E., a member of the Board of Visitors is much regretted. Mr. Nethersole took a keen interest in the Institution, was always ready to give assistance in cases of difficulty especially in respect of patients whose funds and estates were in his hands, and his presence as a member of the Board which he always attended will be much missed. He was a sound adviser and in no sense a figurehead.

Visits.

His Excellency the Governor and Lady Denham visited the Hospital on December 24th and inspected a considerable portion of the Hospital both male and female divisions. This gave much pleasure to the patients and staff. At the same time His Excellency and Lady Denham graciously gave cigarettes for the male patients and candies for the female patients which were truly appreciated.

The Hon. C. C. Woolley visited the Hospital on the 14th September, took a keen interest in the Institution, and kindly presented the trophy for the Junior Cricket Competition for the Colony.

The Superintending Medical Officer also paid several visits and during his absence Dr. J. M. Hall, at the time acting S.M.O., also visited, especially in connection with sanitation.

Church Services.

The usual Services have been held weekly and on special occasions.

Attendance—Church of England: Males 150, Females 146; Roman Catholic, Males 21, Females 34.

The Hospital was glad to welcome back the Rev. Father Semmes, S.J., who ministers to those of the Roman Catholic Faith.

I again repeat that it would be of benefit if those patients of the Jewish Faith received some attention, perhaps the new Rabbi will help in this respect.

Amusement of Patients.

The various forms of amusement provided for the patients as in the past have been cricket and football; it is noticed that the game of bowls has certainly been acceptable for the patients. For inside amusements everythin is done in as far as possible and as money allows to provide same.

To all those who have kindly supplied books and periodicals which are very much appreciated, grateful thanks are extended.

The usual Annual Sports held on September 25th were very successful, and it may safely be said, better than in previous years. To all those who assisted in the carrying out of the arrangements, the judging of the races and general ground arrangements many thanks are extended.

Special prizes were given.

His Excellency the Governor presented a fine silver cup for the Inter-departmental Tug of War event which is annually held at the Asylum Sports between sub-officers of the General Penitentiary, Fire Brigade, Constabulary and Attendants of the Mental Hospital. Mr. V. C. Alexander presented a clock for the racing contest between the nurses of the Public General Hospital and this Institution. Another special prize was given by Messrs. Nathan & Company.

I have to thank all those who through their generosity contributed towards funds for prizes in order that this occasion might be a success.

His Excellency the Governor graciously presented the prizes.

The Combined Medical Service Cricket Club, who played their matches on the Hospital grounds, were able to win two trophies, one the Junior Cricket Club Competition and the other the Civil Service Interdepartmental Cricket Cup and Challenge Shield. Though all patients cannot play or do not play cricket, it must be mentioned that these competitions in the main are for the amusement of the patients, and that when these trophies were won, the patients of this Hospital were, in my opinion, more interested and more keen on the results than a great many persons of sound mind.

Employment of Patients.

Female patients usefully employed totalled 645, of these 370 were occupied in the Sewing Room, Laundry, Gardening and the final preparations of Coir for making mattresses and pillows. The remainder were employed in domestic work in wards and kitchens.

Male patients employed in all 420, of these 160 in the upkeep of farm and grounds also gardening, 44 tailors, carpenters, tinsmiths; 40 sanitation duties; 176 domestic duties, messengers, porters, etc.

From the foregoing it is patent that it is much more difficult to get men to work than women; no patient is compelled to work, but when fit every patient is persuaded to do so because occupational therapy is a most necessary and important method of treatment for mental patients.

Staff.

Medical Officers.—I regret to have to record the death of Dr. J. S. Myers, Senior Assistant Medical Officer, who was for fourteen years a medical officer of at the Asylum and twenty years in the Medical Service of the Jamaica Government.

During the year two medical officers have definitely been overburdened with work, namely, Dr. U. N. Murray and Dr. R. O. Cooke, this because of Dr. Myers' illness and death. Dr. Cameron being on leave for five and one half months and the Medical Superintendent for two and one third months.

It is mentioned that Dr. Myers had to go on sick leave during the absence of the Medical Superintendent who was on vacation leave. Dr. Murray and Dr. Cooke are to be congratulated on doing their best under trying conditions, and with the exception that records of chronic cases have not been kept up to date the attention towards patients has been of a high standard.

Dr. C. H. Tomlinson was appointed Supernumerary Medical Officer.

Miss M. Grant, Assistant Matron, was granted three months leave.

Credit is due to Miss Tyler, Matron, for the nursing arrangements of the Female Division and other activities; I am glad to record that this officer was awarded the Jubilee Medal of His late Majesty King George V.

Office Dept.—I regret to record the death of Mr. R. R. Wynter who was Chief Clerk and Purveyor for eighteen years and for forty-two years an officer of the Civil Service. The death of Mr. Wynter was to me as Chief Officer of this Hospital a very severe blow; he was a fine example of loyalty, honesty and integrity, and was always ready to help in everything for the betterment of the hospital both in respect of patients and staff. Mr. V. A. Isaacs, Second Class Clerk, stepped into the breach and has done admirable work under the trying conditions of having a temporary staff under him. In spite of difficulties all members of the office staff have given of their best.

Mr. Robinson, Dispenser, was much to our regret, transferred to the Public General Hospital as Chief Dispenser; he is congratulated on his promotion. Mr. G. B. Rodgers filled the position for the last two and one-half months of the year pending the arrival of Mr. O. G. Miller.

Subordinate Staff.—On the whole the Subordinate Staff have done their work satisfactorily and I am glad to report that 8 nurses and 9 attendants passed the final examination in Mental Nursing, and that 11 nurses and 7 attendants passed the preliminary examination. It must also be recorded that with few exceptions the junior staff are really proving their interest in this branch of the nursing profession.

Three male attendants left the Service, retired on account of ill-health, one resigned and one was dismissed.

Three nurses were dismissed and one absconded.

Thanks are due to all officers for their assistance in the management and working of the Institution and their loyal support during a somewhat difficult year.

The Staff Amusement Club still carried on and was able to enjoy very pleasant outings to Dunns River on 10th and 17th June. Unfortunately it is impossible to let the whole staff off on the same day otherwise these outings would be more appreciated.

The Thrift Club has again proved its value, the return for shares taken out being just under 4% per share.

The courses of training for nurses and attendants still continue and as I have already said the junior staff are taking a keen interest in their training.

Expenditure for the Calendar Year 1935.

It is anticipated that approximately £1,000 will be saved during the current financial year, possibly a little over this amount, this relative to the total sum allocated for expenditure for the upkeep and management of this Hospital.

Every economy is being effected without interfering with efficiency.

The usual Statutory Statistical Tables follow.

R. W. Dale Hewson,
Medical Superintendent.

Jamaica Lunatic Asylum.

Population Return 31st December, 1935.

	Males.	Females.	Total.	Males.	Females.	Total.
Remaining 31st December, 1934				954	966	1,920
Admitted during 1935	255	289	544			
Born 1935	3	1	4			
Captured during 1935	3	1	4			
Returned from Public Hospital*	3	1	4	264	292	556
Total under care 1935				1,218	1,258	2,476
Discharged—recovered	67	71	138			
" relieved	48	69	117			
" not improved						
Escaped	4	1	5			
Infants died	2		2			
" discharged	1	1	2			
Patients died	114	105	219			
Sent to Public Hospital	2	1	3			
Total discharged and died				238	248	486
Remaining 31st December, 1935				980	1,010	1,990

* 1 male patient was sent to Public Hospital 30.12.34 and returned 11.1.35.

R. W. Dale Hewson,
Medical Superintendent.

Table I.—Showing the actual Admissions, Re-admissions, Discharges and Deaths during the Calendar Year ended 31st December, 1935.

	Males.	Females.	Total.	Males.	Females.	Total.
In Asylum, 1st January, 1935	..	..	..	954	966	1,920
Cases admitted—						
First admissions	193	181	374			
Not first admissions	62	108	170			
Captured	3	1	4			
Returned from Public Hospital	3	1	4			
Born	3	1	4			
Total cases admitted during the year		..	..	264	292	556
Total cases under care during the year		..	..	1,218	1,258	2,476
Cases discharged—						
Recovered	67	71	138			
Relieved	48	69	117			
Not improved	..	..	..			
Escaped	4	1	5			
Died	114	105	219			
Sent to Public Hospital for surgical treatment	2	1	3			
Infants died	2	..	2			
Infants discharged	1	1	2			
Total discharged and died during year	..	..	..	238	248	486
Remaining in Asylum, 31st December, 1935	..	..	..	980	1,010	1,990
Average number resident during the year		..	..	962	990	1,952

Table Ia.—Showing the number of previous attacks among those admitted during the Calendar Year, 1935, distinguishing those attacks that have been treated to recovery and discharged.

Number of previous Attacks.	Having had previous Attacks.					
	All Attacks.			Attacks followed by Discharge or Recovery.		
	Males.	Females.	Total.	Males.	Females.	Total.
Have had 1 previous attack ..	17	64	81	9	39	48
Have had 2 previous attacks ..	9	12	21	..	10	10
Have had 3 previous attacks ..	1	24	25	..	12	12
Have had 4 previous attacks ..	3	4	7	1	5	6
Have had more than 5 attacks ..	4	3	7	1	1	2
Unknown	..	1	1	..	1	1
..	34	108	142	11	68	79

Table II.—Showing the Causes of Deaths among Male Patients during the Calendar Year, 1935, with the ages at Death.

———	Under 20	20 and under 30	30 and under 40	40 and under 50	50 and under 60	60 and under 70	70 and over	Total.
	M	M	M	M	M	M	M	M
Chronic Brain Disease ..	..	..	4	2	3	..	..	9
Cerebral Hæmorrhage ..	..	..	1	1	..	..	2	4
Maniacal Exhaustion ..	..	..	..	..	..	..	..	..
Status Epilepticus ..	..	..	..	..	..	..	..	..
General Paralysis ..	..	2	14	13	4	3	1	37
Typhoid	..	1	..	1	..	..	..	2
Intestinal Obstruction ..	..	..	..	..	..	..	..	..
Chronic Colitis ..	..	2	3	3	1	..	1	10
Pulmonary Abscess ..	..	3	..	..	1	..	..	4
Syphilis ..	2	..	..	1	1	..	..	4
Pulmonary Tuberculosis ..	1	5	3	2	..	..	..	11
General Tuberculosis ..	..	2	..	5	2	..	..	9
Malignant Malaria ..	..	..	..	..	..	..	..	..
Chronic Heart Disease ..	..	..	1	..	1	..	..	2
Diseases of the Urinary System ..	..	1	1	1	..	..	1	4
Diseases of the Circulatory System ..	..	..	..	..	..	..	..	..
Cancer of Stomach ..	..	..	..	..	..	..	..	..
Pneumonia ..	..	..	4	..	3	1	1	9
Aortic Incompetency ..	..	..	..	..	..	..	..	..
Senile Decay ..	..	..	..	..	1	..	3	4
Status Epilepticus ..	..	2	1	..	..	.	..	3
Acute Hepatitis ..	..	..	..	..	..	1	..	1
Suicide ..	..	1	1	..	..	..	..	2
Cystic Disease of Kidneys ..	..	..	..	..	1	..	..	1
Malignant Disease Pancreas ..	..	..	..	..	..	..	..	..
								116

Table II.—Showing the Causes of Deaths among Female Patients during the Calendar Year, 1935, with the ages at Death.

———	Under 20	20 and under 30	30 and under 40	40 and under 50	50 and under 60	60 and under 70	70 and over.	Total.
	F.	F.	F.	F.	F.	F.	F.	F.
Chronic Brain Disease	..	..	1	2	2	1	..	4
Cerebral Hæmorrhage	..	..	..	..	1	..	..	1
Maniacal Exhaustion	..	..	..	..	..	..	..	..
Cerebral Abscess	..	..	..	..	..	..	..	..
Typhoid Fever	..	..	1	..	..	..	..	1
Gen. Paralysis of the Insane	..	1	1	..	..	1	..	3
Dysentery	..	1	2	1	1	..	1	6
Ankylostomiasis	..	..	..	..	..	1	..	1
Pellagra	..	1	2	1	3	2	..	9
Pulmonary Tuberculosis	..	6	5	4	2	..	..	17
Tuberculosis, other forms	..	..	2	2	1	..	..	5
Syphilis	..	..	1	..	..	..	..	1
Pneumonia	..	1	6	4	2	2	4	19
Diseases of the Circulatory System	..	2	..	5	2	1	3	13
Diseases of the Respiratory System	..	..	..	..	..	..	..	..
Disease of the Urinary System	..	2	..	..	1	1	3	7
Tumour of Brain	..	..	..	..	..	..	..	..
Cirrhosis of Liver	..	..	..	..	..	..	..	..
Hepatic Abscess	..	..	..	..	..	..	..	..
Hæmo-Pericardium	..	..	..	..	1	..	..	1
Senile Decay	..	..	..	..	..	1	1	2
Septicæmia and Pyæmia	..	..	..	1	..	1	..	2
Peritonitis	..	..	..	..	..	1	..	1
Gangrene of Lung	..	1	..	..	..	..	..	1
Acute Entero-Colitis	..	..	..	..	2	..	..	2
Intestinal Obstruction	..	..	..	..	..	..	..	..
Cancer of the Stomach	..	..	..	..	..	..	..	..
Acute Cerebritis	..	2	1	..	1	..	..	4
Abscess of Lung	..	1	..	..	1	..	..	2
Carcinoma of Cervix	..	..	..	..	..	..	..	..
Chronic Ulcerative Colitis	..	..	1	..	..	1	..	2
Shock following Vag. Hyst.	..	..	1	..	..	..	..	1
								105

Table III.—Showing the duration of the Disorder on Admission in the Admissions, Discharges and Deaths during the Calendar Year ended 31st December, 1935.

Class.	Admission.			Discharges. Recovered.			Relieved or otherwise.			Deaths.		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
First Class—First attack, and within 3 months on admission	85	180	265	20	53	73	18	30	48	11	70	81
Second Class—First attack, above 3 and within 12 months on admission	61	33	94	16	13	29	9	9	18	30	8	38
Third Class—Not first attack, and within 12 months, etc.	41	49	90	10	4	14	15	21	36	35	4	39
Fourth Class—First attack or not, but of more than 12 months on admission	36	26	62	..	..	..	..	..	..	27	12	39
Fifth Class—Congenital	3	..	3	..	..	..	..	8	8	..	6	6
Unknown	29	1	30	21	1	22	6	1	7	13	5	18
Total	255	289	544	67	71	138	48	69	117	116	105	221

Table IV.—Showing the probable Causes of Insanity in the Patients admitted during the Calendar Year ended 31st December, 1935.

Cause of Insanity.	Number of instances in which each Cause was assigned. Number of Cases. Admissions—Males, 255, Females 289—Total 544.											
	As predisposing Cause.			As exciting Cause.			As predisposing or exciting where these could not be distinguished.			Grand Total.		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
Moral—												
Domestic trouble (including loss of relatives and friends)	26	..	26	..	..	..	..	..	..	26	..	26
Adverse circumstances (included business anxieties and pecuniary difficulties)	12	..	12	..	..	..	..	..	..	12	..	12
Mental anxiety and worry (not included under above two heads) and overwork	20	..	20	..	..	..	..	..	..	20	..	20
Religious excitement	31	2	33	..	..	..	..	..	..	31	2	33
Love affairs (including seduction)	..	1	1	..	..	..	..	..	..	..	1	1
Physical—												
Intemperance in drink	25	1	26	..	..	..	..	..	..	25	1	26
Accident or Injury	8	..	8	..	..	..	..	..	..	8	..	8
Traumatism	..	1	1	..	..	..	..	..	..	..	1	1
Other bodily disease	..	..	..	..	..	..	..	..	..	..	..	..
Previous attacks	28	45	73	..	..	..	..	..	..	28	45	73
Heredity influence	21	49	70	..	..	..	..	..	..	21	49	70
Adolescence	..	..	..	..	..	..	..	..	..	..	..	..
Epilepsy	14	..	14	..	10	10	..	..	..	14	10	24
Puerperal	..	..	..	..	..	..	..	..	..	..	..	..
Syphilis	25	..	25	..	..	..	..	52	52	25	52	77
Not known	6	..	6	..	..	..	..	117	117	6	117	123
Senility	16	..	16	..	..	..	..	..	..	16	..	16
Menopause	..	..	..	..	..	..	..	..	..	..	..	..
Ganja Smoking	9	1	10	..	..	..	..	..	..	9	1	10
Puberty	..	..	..	..	..	..	..	..	..	..	..	..
Tubercular Disease	..	..	..	..	..	..	..	10	10	..	10	10
Venereal Disease	..	..	..	..	..	..	..	..	..	..	..	..
Fevers	11	..	11	..	..	..	..	..	..	11	..	11
Congenital defect ascertained	3	..	3	..	..	..	..	..	..	3	..	3
										255	289	544

Table V.—Showing the form of Mental Disorders in the Admissions, Recoveries and Deaths during the year and the form of Mental Disorders of the Inmates on 31st December, 1935.

Form of Mental Disorders.	Admissions.			Recoveries.			Deaths.			Remaining in Asylum.		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
I. Congenital or Infantile Mental Deficiency												
With Epilepsy	..	2	2	..	..	..	..	..	..	4	..	4
Without Epilepsy	..	2	2	..	..	..	..	..	..	..	9	9
II. Insanity occurring later in life—												
Insanity with Epilepsy	3	..	3	..	..	..	..	..	..	73	..	73
General Paralysis of the Insane	..	2	2	..	..	..	38	3	41	29	1	30
Insanity with the grosser brain lesions	..	..	..	..	..	..	..	..	..	..	..	..
Acute Delirium (Acute Delirious Mania)	..	..	..	..	..	..	..	..	..	..	..	..
Confusional Insanity	..	7	7	..	..	..	..	..	..	..	..	..
Stupor	..	..	..	..	..	..	..	..	..	..	..	..
Primary Dementia	..	..	..	..	..	..	..	..	..	..	..	..
Mania—												
Acute	132	76	208	38	40	78	13	17	30	219	313	532
Adolescent	..	2	2	..	..	..	..	..	..	..	..	..
Chronic	34	10	44	..	..	..	29	42	71	354	221	575
Recurrent	2	42	44	26	..	26	7	5	12	178	150	328
Depressive Psychosis	1	..	1	..	..	..	..	..	..	..	..	..
Puerperal	..	2	2	..	2	2	..	..	..	..	..	..
Senile	..	3	3	..	1	1	..	..	..	..	..	..
Melancholia—												
Recent	..	14	14	..	5	5	..	7	7	..	10	10
Chronic	..	..	..	..	..	..	..	..	..	25	2	27
Recurrent	..	..	..	..	..	..	..	..	..	..	..	..
Alternating Insanity	..	23	23	..	14	14	..	4	4	..	51	51
Delusional Insanity	38	9	47	..	3	3	19	2	21	23	..	23
Systematised	..	..	..	..	..	..	..	..	..	..	..	..
Non-systematised	..	..	..	..	..	..	..	..	..	..	..	..
Chronic Alcoholic	..	1	1	..	1	1	..	..	..	..	..	..
Paranoia	..	2	2	..	..	..	..	..	..	..	..	..
Epilepsy Acquired	..	10	10	..	2	2	..	5	5	..	35	35
Doubt	5	..	5	..	..	..	..	..	..	..	..	..
Moral Insanity	..	..	..	..	..	..	..	..	..	..	..	..
Dementia	..	..	..	..	..	..	..	..	..	..	..	..
Senile	14	..	14	..	..	..	10	11	21	50	98	148
Secondary or Terminal	..	10	10	..	..	..	..	2	2	..	..	..
Præcox	25	72	97	2	3	5	..	7	7	25	119	144
Neurosis—												
Neurasthenia	..	..	..	..	..	..	..	..	..	..	..	..
Anxiety Neurosis	1	..	1	1	..	1	..	..	..	..	..	..
Psychoneurosis	..	..	..	..	..	..	..	..	..	..	..	..
Hysteria	..	..	..	..	..	..	..	..	..	..	1	1
Psychasthenia	..	..	..	..	..	..	..	..	..	..	..	..
Total	255	289	544	67	71	138	116	105	221	980	1010	1990

Financial Statement.

Table VI.—Cost of Maintenance for the Calendar Year, 1935.

	£	s.	d.
Salaries	5,276	7	3
Wages	17,069	0	9
Religious Services	60	0	0
Dictary	13,264	15	11
Uniform for Nurses and Servants	581	7	8
Furniture and Utensils	169	18	3
Clothing and Bedding	2,146	14	5
Drugs and Medical Appliances	257	9	4
Funeral Expenses	128	1	5
Travelling Expenses of Discharged Lunatics	79	4	5
Farm and Grounds and Repairs	418	0	7
Rent of Telephones	92	4	10
Washing and Sanitary Arrangements	283	5	7
Fuel and Lighting and Power	913	19	8
Water Rates	503	0	0
Miscellaneous	252	11	7
Stationery	..		
	£41,496	1	8

Less Reimbursements.

	£	s.	d.	£	s.	d.
Contributing Patients	3,457	6	0			
Miscellaneous Revenue	113	0	4	3,570	6	4
Net cost to General Revenue				£37,925	15	4

R. W. Dale Hewson,
Medical Superintendent Lunatic Asylum.

(B) Return showing Cost per occupied Bed for year ended 31.12.35.

	Average No. of Beds.	Cost of Staff.			Other Charges.			Total.			Cost per occupied bed per annum. Staff.			Cost per occupied bed per annum. Other Charges.		
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Lunatic Asylum	1,952	22,405	8	0	19,090	13	8	41,496	1	8	11	9	7	9	15	7

(D) Return of Diseases and Deaths in Public General Hospitals (outside Kingston) during 1935.

Diseases.	Cases Treated.	Deaths.	Out-patients.
Epidemic Diarrhoea	6	..	10
Dysentery—			
Amoebic	24	2	68
Bacillary	4	..	..
Unclassified	18	1	88
Erysipelas	7	..	6
Enteric Fevers	545	132	123
Gonococcal Infections	1,233	2	3,845
Influenza	176	25	1,190
Leprosy	..	..	9
Malaria—			
Tertian	2,041	58	10,845
Quartan	16	8	42
Aestivo-autumnal	725	46	2,292
Cerebral	6	6	..
Blackwater	11	1	6
Undefined	1	..	..
Measles	19	..	21

	Cases Treated.	Deaths.	Out-patients.
Poliomyelitis	..	..	8
Cerebro-Spinal-Meningitis	2	2	..
Mumps	4	..	36
Scarlet Fever	..	..	1
Soft Chancre	96	..	282
Syphilis—			
Primary	314	1	1,965
Secondary	52	..	1,375
Tertiary	690	21	5,575
Congenital	38	5	206
Unclassified	31	5	496
Septicæmia	20	13	1
Tetanus	44	19	7
Tuberculosis—			
Pulmonary	197	23	425
Other Forms	148	12	210
Whooping Cough	43	..	294
Yaws	117	..	5,903
Alcoholism	12	1	7
Anæmias	67	5	772
Diabetes	67	10	77
Pellagra	4	1	38
Rheumatism—			
Acute	32	1	1,314
Chronic	233	..	1,750
Rickets	1	..	3
Tumours—			
Malignant	134	27	77
Non-Malignant	115	1	56
Diseases of the Ductless Glands	176	29	563
Do. Nervous System	433	46	2,117
Do. Eye	413	..	1,701
Do. Ear	111	..	589
Do. Circulatory System	711	79	1,844
Do Lymphatic System	169	1	443
Do. Respiratory System	1,373	189	3,205
Do. Digestive System	2,658	122	12,201
Do. Spleen	42	1	81
Do. Breast	121	..	289
Parasites	358	8	2,121
Diseases of the Genito-Urinary System (non-venereal)	2,979	140	7,460
Diseases of the Puerperal State	734	68	328
Do. Skin and Cellular Tissues	1,910	22	17,248
Do. Bones and Organs of Locomotion	318	4	1,161
Malformations	9	..	7
Diseases of Infancy	45	7	91
Diseases of Old Age	4	..	23
Poisons	68	6	120
Diseases produced by external causes	3,146	59	13,766
Ill-defined Diseases	89	4	143
Other General Diseases	145	3	536
No Disease	35	..	76
Malingering	6	..	169
	23,346	1,216	105,705
Death Rate	5.2%		

(E) Return of Surgical Operations, Public General Hospitals (excluding Kingston) 1935.

	Number.
Operations upon Female Genital Organs—	
Salpingectomy	163
Salpingostomy	1
Draining Pyosalpinx	13
Oophorectomy	36
Ovariotomy	49
Ovarian Cysts	22
Dermoid Cyst	1
Salpingo-oophorectomy	27
Broda Ligament Cysts	3

	Number.
Myomectomy	23
Sub-total Hysterectomy	71
Total Mysterectomy	27
Pan Hysterectomy	2
Cæsarean Section	5
Uterine Suspension	16
Curettage	411
Dilation of cervix	68
Excision of cervix	1
Extra uterine gestation	30
Repair of vagina	38
Removal of retained Placenta	5
Removal of Fœtus	1
Excision of hymen	2
Excision of labial growths	11
Perineorrhaphy	8
Draining pelvic abscess	4
Cervical polypus	4
Parturition	
Instrumental Delivery	60
Cæsarean Section	8
Craniotomy	5
Eclampsia (Tardy Labour)	2
Induction of Labour	13
Operations on Herniæ—	
Radical Cure—Inguinal	154
Femoral	1
Strangulated hernia	42
Obstructed hernia	5
Umbilical hernia	1
Ventral hernia	3
Operations for Appendicitis—	
Appendicectomy	726
Appendix abscess	19
Operations upon the Stomach and Intestines—	
Perforation of gastric ulcer	1
Perforation of duodenal ulcer	1
Colostomy	4
Intestinal obstruction	25
Laparotomy	155
Gastro-enterostomy	20
Ramsteadt Operation	1
Intussusception	9
Laparotomy for tubercular peritonitis	13
Lateral anastomosis	8
Operation for Pyloric Stenosis	1
Resection of Bowel	3
Splenectomy	1
Operations on the Bladder	
Supra pubic cystotomy	49
Cystoscopy	1
Excision of malignant growth	2
Partial Cystectomy	1
Vesical calculis	1
Prostatectomy	15
External Urethrotomy	1
Operations upon the Urethra and Penis—	
Dilating urethral stricture	496
Circumcisions	354
Amputation of penis	11
Elevation of urethra	1
Reduction of para phymosis	32
Urethotomy	10
Removal growth Penis	1
Operations on the Scrotum and Testicle—	
Radical cure for Hydrocele	69
Tapping Hydrocele	6
Hæmatocele	1
Orchidectomy	14
Paracentesis Abdomenales	10
Undescended Testicle	2

	Number.
Operations on the Anus and Rectum—	
Anal fistulæ	21
Hæmorrhoidectomy	31
Dilating rectal stricture	11
Injecting Hæmorrhoids	5
Excision of rectum	10
Perenial Section	1
Amputations	139
Operations upon the Ear—	
Radical cure for mastoid	7
Conservative operation for mastoid	3
Operations on the Nose, etc.—	
Removal of adenoids	238
Turbinectomy	9
Tonsillectomy	326
Nasal Polyp	21
Plastic repair of throat	1
Enlarged Turbinates	5
Tracheotomy	3
Operations on the Thorax—	
Amputation of breast for malignancy	19
Adenoma of breast	2
Empyema	2
Artificial Pneumothorax	30
Tumours of breast	4
Ribs resection	4
Thoracoplasty	1
Operations on Tendons—	
Suturing tendons	64
Tenotomy	1
Operations on Antrum and Frontal Sinus	36
Opthalmic Operations—	
Extraction of cataract	22
Needling cataract	22
Enucleation of eyeball	50
Iridectomy	11
Meibomian cysts	21
Pterygium	25
Lachrymal apparatus	2
Operations on Affections of Bones—	13
Osteotomy	6
Osteomyelitis	53
Sequestrotomy	46
Removal Os Calcis	1
Dislocations	49
Fractures of Bones—	
Plating femur	45
Setting femur	17
Wiring fractures	5
Setting fractures	65
Depressed fracture of frontal bone	5
Depressed fracture of molar bone	..
Plaster setting	1
Reduction	4
Excision of Glands—	
Cervical	4
Axillary	5
Inguinal	148
Femoral	3
Operations upon the Thyroid Gland	4
Peri Arterial Sympathectomy	3
Operations upon the Liver and Gall Bladder—	
Draining gall bladder	38
Cholecystectomy	12
Incision of Abscess	1,015
Surturing wounds	558
Incision septic wounds	5
Removal of foreign bodies (bullets, needles, etc.)	101
Examinations	43
Scraping Ulcers	132
Dental extractions	2,922
Excision of ganglion	7
Excision of sarcoma	1
Excision of toe nail	104
Excision of lipoma	18

	Number
Excision of keloid	15
Excision of epulis	5
Breaking down adhesions	38
Skin graft	35
Excision of tubercular glands	8
Excision of bursæ	10
Excision of carbuncle	29
Amputation of supernumerary digits	32
Sebaceous Cysts	38
Operation for Hare Lip	4
Plastic operation for contractures of arm, etc. ..	7
Bronchoscopy	—
Sigmoidoscopy	1
Trephining for cerebral compression	4
Excision of fibroma	11
Cauterisation of warts, sinuses	29
Closing pneumothorax	—
Phrenicectomy	39
Miscellaneous	418
Other Minor Operations	680
Total ..	11,383

(F) *Report and Returns of the Medical Attendant to Lepers' Home.*

At the beginning of the year under review there were 131 inmates in the house—69 males, 62 females—at the end of the year there were 149 inmates, 83 males, 66 females.

Five inmates absconded, four returned to the home and one is still away.

There were 11 deaths during the year among the inmates, certified in each case as having been due to the effects of leprosy. Five inmates were discharged—disease apparently arrested.

There were 39 admissions during the year. Of this number 31 were new cases, the rest being re-admissions.

The general health of the inmates was fairly satisfactory. There was no increase in the incidence, seasonal or otherwise of intercurrent disorders.

Overcrowding obtains in the female division especially. Accommodation is provided for 54, and and during the year we had to house 67 females. In order to do this the use of the old infirmary ward had to be resorted to. This apartment is integral with the dispensary and office of the Medical Attendant, which is hardly to be regarded as a satisfactory location. It is most desirable that provision should be made for an additional ward.

Routine treatment of inmates with preparations of Chaulmoogra and the Hydnocarpus oils, chiefly by oral administration was carried out. The results obatined are only fairly satisfactory. .

The Diet Scale was adhered to.

Religious ministrations was attended to regularly by representatives of the Anglican, Roman Catholic and Seventh-day Adventist Denominations, also by the Salvation Army.

For recreation the inmates engage in games like croquet, cricket, draughts and dominoes.

A gramophone and other musical instruments provide additional entertainment.

A Library is maintained for the benefit of the inmates.

Plots of land are allotted on the farm to those physically fit to cultivate the soil. The products are purchased by Government at prevailing market prices for the use of the inmates themselves.

The buildings present generally a somewhat ramshackle appearance; they stand badly in need of repairs and general renovation.

The method of sewage disposal by the bucket system is rather a nuisance. This should I think be abandoned and the water carriage system of sewage disposal installed instead.

The staff consists of:—

1. Medical Attendant.
2. Superintendent.
3. Matron
4. Nurses—four
5. One Cook and one Asst. Cook
6. One Messenger.

The nurses are not qualified persons. This is rather a handicap, and militates against obtaining the best results especially in the treatment of the very sick and infirm.

Towards the end of the year Mr. E. A. Levy, who held the position of Superintendent for a long number of years retired on his pension. Mr. S. A. Johnson was appointed to succeed him.

H. H. Blair,
Medical Attendant.

VI.—PRISONS.

Reports of the Medical Officers of Prisons.

General Penitentiary, Kingston.

There were 998 prisoners admitted during the year, of whom 8 were in feeble health.
There were 922 prisoners discharged during the same period, of whom 4 were in feeble health.
There were 4 deaths. Two prisoners were removed on Medical grounds and 5 were transferred to the Lunatic Asylum.

Health of the Staff.—Among the members of the Staff there were 328 cases of illness attended during the year.

The Sanitary condition of the Institution was satisfactory.

Return of Medical Statistics for the General Penitentiary, Kingston, during the year ended 31st December, 1935.

Number of prisoners in custody 1.1.35	658
Admitted during the year	998
Discharged during the year	922
Greatest number in custody on any one day	675
Daily average in custody	624
Removal on Medical grounds	2
Removal to Mental Hospital	5
Deaths	4
Greatest number in Hospital on any one day	49
Daily average in Hospital	37
Number of treatments outside Hospital	12,662
Minor Operations performed	50
Vaccinations performed	564
Salvarsan injections	298

R. H. Davidson,
Surgeon.

St. Catherine District Prison.

State of Prison.—The sanitary condition of the wards, Hospital Officers' Quarters, and compound were maintained in a satisfactory manner.

Health of Prisoners.—Thirty-nine prisoners were admitted in poor health. The total number of admissions to Hospital during the year was 664. The majority of admissions were for malarial fever, 296 cases or 44.8% of total number of admissions. The proximity of swamp lands on the plain of St. Catherine, the inexpert application of irrigation water, the admission of infected persons from malarious districts of the Island are factors which are to be regarded in accounting for the incidence of malaria in this Institution. There was only one death among the prisoners, caused from typhoid fever.

Sixty-nine specimens of blood were submitted for Khan Tests for Syphilis—of which 47 were positive. In all 256 injections of N.A.B. were given in the treatment of these cases. There were four executions during the year carried out in accordance with the provisions of the Law.

The mortality (excluding executions) based on the daily average number in custody was 1,862.

Health of Officers.—Seventy-seven officers were treated during the year—most of them for malarial fever.

Two officers were retired as physically unfit for the Service. One officer died of Cardiac trouble.

Improvements.—No improvements were carried out during the year.

Return showing the following for the year ending 31st December, 1935.

	Total.
(1) Mortality from Execution 4; (2) from natural cause 1	5
Insanity	4
Removal on Medical Grounds	1
Suicide	Nil
Cases treated among prisoners in Hospital	664
Number in Custody 31.12.35	545
Received into Prison during 1935	3,240
Daily average in Custody during 1935	537
Death per 1,000 calculated on daily average during 1935	1,862
Cases treated in Prison during 1935	1,909
Greatest number in Custody any one day during 1935	594
Discharged during the year 1935	3,222
Number of Officers treated in the Prison during 1935	77
Number of Prisoners received in feeble health during 1935	39
Number of Prisoners discharged in feeble health during 1935	16
Daily average of sick in Hospital during 1935	22.446
Daily average of sick treated outside Hospital during 1935	60
Greatest number of sick in Hospital on any one day during 1935	36
Greatest number of sick treated outside Hospital on any one day during 1935	128
Number of cases treated outside Hospital during 1935	1,245

H. H. Blair,
Medical Officer.

Government Industrial School, Stony Hill.

During the year there were 456 cases treated in Hospital.
The diseases most prevalent were:—

Ulcers	..	119
Influenza	..	112
Ankylostomaisis	..	86
Conjunctivitis	..	40
Indigestion	..	25

A survey was taken of the inmates for Intestinal Parasites and the results showed approximately 97% were positive for Ankylostomaisis. Treatment was accordingly administered.
During the year there has been no epidemic except 18 cases of Chicken Pox.
14 minor operations were performed, and 2 cases of Framboesia were given injections.
There has been one death from Congenital Syphilis.

S. C. Grant,
Medical Officer.

Return of Diseases.

Diseases.	General Penitentiary.			St. Catherine District Prison.			Industrial School, Stony Hill.		
	In-patients.	Deaths.	Out-patients.	In-patients.	Deaths.	Out-patients.	In-patients.	Deaths.	Out-patients.
Enteric Fever	..	..	..	5	1	..	..	..	..
Malaria	119	1	600	309	..	131	4	..	..
Yaws	..	..	4	..	..	23	..	..	..
Tuberculosis—Pulmonary ..	3	..	..	3	..	..	..	..	..
" of other organs ..	..	..	..	1	1	..	..	..	..
Influenza	11	..	6	8	..	3	114	..	..
Measles	..	..	..	..	..	..	..	..	..
Chicken Pox	..	..	..	..	..	1	18	..	..
Diarrhœa	95	..	..	..	..	..	..	..	..
Dysentery	30	..	..	..	..	..	..	..	..
Mumps	..	..	..	4	..	3	..	..	..
Soft Chancre	..	..	..	14	..	14	..	..	..
Diabetes	..	..	..	1	..	..	..	..	..
Syphilis	5	1	322	33	..	34	1	1	..
Gonorrhœa	..	..	102	6	..	127	..	..	..
Septicæmia	..	..	..	..	..	..	..	..	..
Cancer	..	..	..	..	..	..	..	..	..
Tumours, non-malignant ..	1	..	..	1	..	..	..	..	..
Rheumatism, Acute	5	..	140	..	..	8	2	..	..
" Chronic	..	..	81	..	..	..	..	..	..
Lumbago	..	..	..	3	..	4	..	..	..
Leprosy	..	..	..	..	..	1	..	..	..
Scurvy	..	..	2	..	..	..	..	..	..
Pellagra	..	..	..	..	..	..	..	..	..
Anaemia	3	..	151	3	..	..	1	..	..
Ankylostomiasis	..	..	..	..	..	..	..	..	..
Appendicitis	..	..	..	..	..	..	..	..	..
Hernia	..	..	..	..	..	..	..	..	..
Affections of Nervous System ..	32	1	412	25	..	49	42	..	..
Affections of Circulatory System ..	12	..	232	30	..	17	10	..	..
Affections of Respiratory System ..	18	1	349	10	..	21	13	..	..
Affections of Skin and Cellular Tissues ..	62	..	1,023	69	..	196	162	..	..
Diseases of Digestive System ..	41	..	4,283	52	..	306	168	..	..
Diseases of Genito-Urinary System ..	8	..	410	30	..	25	1	..	.
Diseases of Puerperal State ..	1	..	..	..	..	..	..	..	..
Diseases of Bones and Organs of Locomotion	9	..	82	4	..	4	5	..	..
Affections produced by external causes ..	69	..	3,136	30	4	262	44	..	..
Ill-defined diseases ..	39	..	1,327	21	..	10	13	..	..
Diseases of Infancy ..	..	..	..	..	..	..	2	..	..
Diseases of Old Age ..	..	..	..	2	..	6	..	..	..
	563	4	12,662	664	6	1,245	600	1	..

VII.—SCIENTIFIC.

Report of the Bacteriological and Pathological Laboratory.

Administration.—At the end of the year the Laboratory staff consisted of:—

The Bacteriologist and Pathologist.
The Assistant Bacteriologist and Pathologist.
8 Assistants
1 Clerical Assistant
2 Washroom Attendants
1 Cleaner.

New members of the staff are Messrs. A. A. Narcisse, L. M. Phipps and J. J. Williams. Messrs. W. B. Duhaney and S. H. Bernal severed their connection with the Laboratory. The 1st Laboratory Assistant was on 2 months leave of absence during the months of September and October.

General.

Equipment.—Additions of equipment to the Laboratory during the year were 2 microscopes, 1 autoclave, 2 water-baths, 1 microtome, 1 incubator, 1 inspissator and several time-clocks.

Serology.—(1) Syphilis. The Kahn Precipitation Test was used throughout the year, a total of 15,366 specimens being done. Routine Syphilis Serological Examination on all patients admitted to the Kingston Public Hospital was carried out throughout the year. These ward patients showed a positivity of 43% which is just about the same as that shown by the total number of bloods done for Syphilis for the whole Island.

During the year routine Khan tests were done on the placental bloods of all patients admitted to the Victoria Jubilee Lying-in Hospital—a total of 1,166 was done. During the latter part of the year controls were done on placental and venous bloods from this institution. Of a total of 218, 52 venous bloods were positive of which 20 were negative from the placenta. There was only one case in which the venous blood was negative and the placental blood positive.

(2) *Enteric Diseases.*—Serology for Widal tests shows a total of 4,869 as compared to 2,526 tests performed during 1934. Much of this increase is accounted for by the 2,182 examinations done for the Paratyphoid Group of diseases. These examinations were performed in all bloods Widal negative and showing no Malaria parasites, throughout the year. Of the 1,091 examinations for B. Paratyphosus A only 8 were positive. Of the 1,091 examinations for B. Paratyphosus B only 4 were positive. These figures support the impression given previously that the Paratyphoid fevers are very rare in this Island.

Stool Examinations continue to increase. Examinations for Helminths increased from 893 in 1934 to 1,638 in 1935; for Amoebae from 669 in 1934 to 831 in 1935; for B. Dysenteriæ from 200 in 1934 to 363 in 1935. The majority of these examinations was from the Lunatic Asylum. This increase is shown in the total number of specimens examined from the Lunatic Asylum as being 1,530 in 1935 compared to 967 in 1934. 316 specimens from the Stony Hill Industrial School were examined for Helminths of which only 11 showed no ova.

Smears for Malarial Parasites.—All the laboratory work of the Malaria Commission was done by the Laboratory throughout the year—1,508 slides for Malaria Parasites being examined for the Commission as well as 26,156 Larval examinations. As a result of a circular asking physicians to send slides for Malaria Parasites with all their widals the total number of slides for malaria during the year was 2,970 as compared with 1,635 in 1934. Smears showed a positivity of approximately 30% during 1935 as compared to a positivity of 25% during 1934.

On October 21st the Women's Free Clinic for Venereal Diseases was started on Water Lane under the direction of the Government Bacteriologist. Up to the 31st December 569 patients have been seen. As smears for Gonococcus and bloods for Kahn are done on every patient seen at this Clinic the work of the Laboratory has been much increased.

Research.—In addition to the Serological work mentioned above a start has been made on T.B. cultures using the egg-potato medium of Dr. K. A. Jensen as furthered by Evelyn M. Homes. 154 cultures have been done during the year mostly on microscopically "T.B. negative" sputa.

22,500 c.c. of Typhoid Vaccine were made during the year.

Reports on Typhoid and Malaria Parasites are communicated to physicians in the country by telegram. The number of telegrams sent during the year was 897.

Table I.—Origin of all Specimens.

	1931.	1932.	1933.	1934.	1935.
Kingston Public Hospital	7,433	9,061	10,099	19,259	22,634
Lunatic Asylum ..	687	701	601	967	1,530
Other Institutions	182	1,181	1,926	1,826	5,133
Country Medical Districts	708	875	1,018	1,783	3,871
Health Officers ..	..	175	739	2,709	3,440
Private Practitioners	907	642	716	835	2,958
	9,917	12,635	15,099	27,379	39,566

Table II.—Distribution of Specimens.

	1931.	1932.	1933.	1934.	1935.
Autogenous Vaccines	157	46	61	47	52
Autopsies ..	103	118	114	148	141
Bismuth ..	..	..	..	1,410	854
Blood Examinations—					
Counts ..	188	202	251	350	415
Cultures ..	6	15	14	25	17
Parasites	141	86	280	1,635	2,970
Parasites (Malaria Commission)—	..	..	..	615	1,508
Sugars ..	146	308	517	606	846
Ureas ..	10	16	38	88	115
Examinations of Faeces—					
Helminths	793	620	691	893	1,638
Amoebae ..	47	99	388	669	831
B. Dysenteriae	6	110	116	200	363
Miscellaneous	..	44	59	40	51
Examinations for Gonococci	85	90	151	202	435
Examinations for B. Tuberculosis ..	337	375	422	464	957
Gastric Analyses	3	11	16	38	20
Medico-Legal Examinations	99	162	121	202	241
Milk Examinations	..	80	..	28	46
Morbid Histology	63	77	85	127	142
Persons Vaccinated	..	..	139	119	106
Serology of Syphilis	6,201	7,489	5,610	8,842	15,366
Serology of Enteric Diseases	538	825	1,477	2,526	4,869
Throat Swabs ..	13	81	102	122	50
Typhoid Vaccine Prepared	..	828	1,294	1,146	1,125
Unclassified Examinations	16	126	204	86	459
Urinalyses ..	940	1,293	2,275	5,994	5,169
Water Examinations	199	362	664	742	780
	9,917	12,635	15,099	27,379	39,566

Table III.

Nature of Test.	Kingston Public Hospital.	Lunatic Asylum.	Other Institutions.	Country Medical Districts.	Health Officers.	Private Practitioners.	Total.
Autogenus Vaccines ..	52	..	..	..	..	..	52
Typhoid Vaccines ..	..	..	1,125	..	..	..	1,125
Bismuth ..	..	..	..	..	854	..	854
Blood Examinations—							
Counts ..	352	3	11	7	..	42	415
Cultures ..	10	1	2	1	..	3	17
Malarial Parasites +	504	75	1	106	591	65	1,342
Malarial Parasites −	1,279	483	7	252	981	134	3,136
Sugars ..	800	1	3	13	..	29	846
Ureas ..	112	..	..	1	..	2	115
Examination of Faeces—							
Ankylostome +	140	73	317	105	20	25	680
Ascaris +	7	20	21	10	5	2	65
Trichocephalus ..	31	72	51	27	8	8	197
Helminths −	408	49	30	90	49	70	696
Amoebae +	54	48	39	6	3	21	171
Amoebae −	239	272	70	29	1	49	660
B. dysenteriae +	..	11	..	..	..	..	1
B. dysenteriae −	8	25	60	10	1	32	362
Miscellaneous ..	14	2	6	9	13	7	51
Examinations for Gonococci—							
Gonococci +	20	..	129	13	..	74	236
Gonococci −	37	..	4	22	..	113	176
Gram. Neg. Diplococci +	8	..	..	..	..	15	23

Nature of Test.	Kingston Public Hospital.	Lunatic Asylum.	Other Institutions.	Country Medical Districts.	Health Officers.	Private Practitioners.	Total.
Examinations for B. Tuberculosis—							
B. Tuberculosis+ ..	34	5	2	95	14	34	184
B. Tuberculosis –	191	78	6	223	44	77	619
Culture B. Tuberculosis + ..	..	..	30	..	..	..	30
Culture B. Tuberculosis – ..	..	..	124	..	..	..	124
Medico-legal Articles—							
Blood + ..	..	..	102	..	..	..	102
Blood – ..	..	..	55	..	..	..	55
Human Blood Examinations ..	..	..	21	..	..	..	21
Semen + ..	..	..	14	..	..	..	14
Semen – ..	..	..	49	..	..	..	49
Milk Examinations ..	..	..	..	..	46	..	46
Morbid Histology ..	60	10	4	53	1	14	142
Serological Examinations							
Khan Precipitation—							
+ ..	4,585	11	656	584	20	814	6,670
– ..	5,279	26	1,639	603	44	993	8,584
Doubtful + ..	22	..	5	30	1	34	92
Spinal Fluids ..	10	..	..	10	..	..	20
Widal Reaction—							
B. typhosus + ..	307	14	3	378	31	54	787
B. typhosus – ..	1,160	12	6	401	34	55	1,668
B. typhosus (doubtful) (Tl/25)	112	3	1	92	4	20	232
B. paratyphosus A +	2	..	..	6	..	..	8
B. paratyphosus A –	707	6	4	294	31	41	1,083
B. paratyphosus B +	2	..	..	1	..	1	4
B. paratyphosus B –	707	6	4	299	31	40	1,087
Stomach Contents—							
Test Meal ..	19	..	..	..	..	1	20
Throat Swabs—							
Diphtheria + ..	..	..	..	..	..	..	..
Diphtheria – ..	13	..	1	5	3	7	29
Streptococci + ..	10	2	..	1	3	5	21
Unclassified Examinations	45	5	343	33	..	33	459
Urine Examinations—							
Chemical Qualitative	4,653	1	3	46	11	29	4,743
Chemical Quantitative ..	123	..	1	2	..	4	130
Bacteriological ..	271	..	..	14	..	11	296
Water Examinations—			Water Board				
Filtered—							
Positive ..	..	..	..	..	1	..	1
Doubtful ..	..	..	..	..	2	..	2
Negative ..	..	..	..	..	3	..	3
Filtered Chlorinated—							
Positive ..	..	..	..	..	63	..	63
Doubtful ..	..	..	67	..	284	..	351
Negative ..	..	..	71	..	199	..	270
Unfiltered— ..							
Positive ..	..	..	..	..	29	..	29
Doubtful ..	..	..	..	..	13	..	13
Negative ..	..	..	4	..	..	..	4
Unfiltered Chlorinated—							
Positive ..	..	..	..	..	2	..	2
Doubtful ..	..	..	1	..	..	..	1
Negative ..	..	..	41	..	..	..	41

Table IV.

Causes of Death.	Ordered for Coroner.	Requested by M.O.'s of Hospitals.	Total.
General Diseases—			
(1) Syphilis (Congenital, acquired) ..	1	4	5
(2) Enteric Fever	1	2	3
(3) Septicæmia	..	1	1
(4) Lymphatic Leukæmia	..	1	1
(5) Status Lymphaticus	1	..	1
	3	8	11
Injuries—			
(1) Burns, (Shock, Sepsis, Bronchopneumonia)	13		13
(2) Fracture of Long Bones (Shock, Sepsis Cardiac failure)	7	..	7
(3) Fracture of Skull (Hæmorrhage, Septic Meningitis)	10	..	10
(4) Spinal Injuries (Fractures, Dislocations, Hæmorrhage) ..	4	..	4
(5) Rupture of Spleen	1	..	1
(6) " Liver	1	..	1
(7) " Stomach	3	..	3
(8) " Intestines	3	1	4
(9) Laceration of Arteries and Veins (Shock, Hæmorrhage)	2	..	2
(10) Poisoning (Cresol, Arsenic, Phosphorus, etc.)	7	..	7
	54	9	63
Diseases of Brain Meninges—			
(1) Cerebral Hæmorrhage	2	5	7
(2) Cerebral Abscess	..	2	2
(3) Epilepsy	1	..	1
(4) Delirium Tremens	..	1	1
	57	17	74
Diseases of Circulatory System—			
(1) Aneurysm of Aorta	..	3	3
(2) Ulcerative Endocarditis	..	2	2
(3) Cardiac Failure (Coronary disease, Acute dilation, Valvular Insufficiencies)	3	5	8
	60	27	87
Diseases of Respiratory System—			
(1) Pulmonary Tuberculosis	2	3	5
(2) Lobar Pneumonia	1	5	6
(3) Bronchopneumonia	..	6	6
(4) Pulmonary Oedema	1	..	1
(5) Pulmonary Embolism	1	..	1
	65	41	106
Diseases of Excretory System—			
(1) Chronic Nephritis (Cardio-renal) ..	1	8	9
(2) Uræmia	..	1	1
	66	50	116
Diseases of the Digestive System—			
(1) Liver Abscess	1	2	3
(2) Gastro-enteritis	..	2	2
(3) Pancreatitis (hæmorrhagic) ..	..	1	1
(4) Gastric Ulcer (perforated) ..	..	1	1
(5) Duodenal Ulcer (perforated) ..	..	1	1
(6) Peritonitis (tuberculous) ..	..	1	1
(7) Intestinal Obstruction (Valvulus, Hernia)	1	1	2
(8) Cirrhosis of Liver (Syphilis) ..	..	2	2
(9) Ascariasis	..	2	2
(10) Mesenteric Thrombosis	..	1	1
	68	64	132
Diseases of Reproductive System—			
(1) Copharo-Salpingitis (Peritonitis) ..	..	3	3
	68	67	135

Causes of Death.	Ordered for Coroner.	Requested by M.O.'s of Hospitals.	Total.
Neoplasms—			
(1) Hypernephroma (Kidney) ..	..	1	1
(2) Carcinoma (Liver, Stomach, Duodenum)	..	4	4
(3) Lymphosarcoma (Mediastinum) ..	..	1	1
	68	73	141

Table V.—Preparation of Media.

Media.	Quantity.
T. B. Medium	9,600 c.c.
Nutrient Agar	52,000 c.c.
Leoffler's Medium	800 c.c.
Broth for Waters	305,000 c.c.
Ascitic Agar	800 c.c.
Blood Agar	900 c.c.
1% Sodium Taurocholate ..	1,000 c.c.
Phosphate Broth	2,000 c.c.
20% Lactose	9,000 c.c.
1% Sugars	6,000 c.c.
Nutrient Broth	8,000 c.c.
Endo Agar	12,000 c.c.
Serum Agar	600 c.c.
G. C. Medium	600 c.c.

As will be seen the work of the Laboratory has once again increased from 27,379 in 1934 to 39,566 in 1935, an increase of approximately 45%. The remarks contained in the 1934 Report as to inadequacy of staff must be even more urgently stressed at this time owing to the further increase in work.

K. Leigh Evans,
Government Bacteriologist and Pathologist.

Table I.—Finance.

Return showing the Cost per Occupied Bed for the year ended 31.12.35.

Hospitals.	Average No. of Beds. occupied.	Cost of Staff.			Other Charges.			Total.			Cost per occupied Bed per annum. Staff.			Cost per occupied Bed per annum. Other Charges.		
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Public Hospital Kingston ..	386	16,629	3	11	18,250	0	10	34,879	4	9	43	1	7	48	5	5
Jubilee ..	34	2,187	16	0	4,410	6	3	6,598	2	3	64	6	5	129	14	6
Lepers' Home ..	139	848	18	4	2,463	1	10	3,312	0	2	6	2	0	17	14	1
Morant Bay ..	33	682	8	10	821	15	8	1,504	4	6	20	13	7	24	18	0
Hordley ..	37	863	16	3	751	4	6	1,615	0	9	23	6	10	20	6	0
Port Antonio ..	53	1,051	5	2	1,072	1	7	2,123	6	9	19	16	7	20	4	5
Buff Bay ..	46	920	12	9	802	2	3	1,722	15	0	20	0	3	17	8	8
Annotto Bay ..	53	906	15	9	1,155	16	10	2,062	12	8	17	2	0	21	16	1
Port Maria ..	66	1,007	5	8	1,442	16	1	2,450	1	9	15	5	1	21	17	2
St. Ann's Bay ..	42	899	13	7	1,145	9	8	2,045	3	3	21	8	4	27	5	8
Cave Valley ..	12	375	0	7	242	1	3	617	1	10	31	5	1	20	3	5
Falmouth ..	26	742	18	6	524	12	9	1,267	11	3	28	11	5	20	3	6
Ulster Spring ..	10	391	4	0	265	2	3	656	6	3	39	2	5	26	10	3
Montego Bay ..	81	1,266	7	0	2,037	2	3	3,303	9	3	15	12	6	25	2	10
Lucea ..	31	708	15	6	909	8	3	1,618	3	9	22	16	10	29	6	5
Sav.-la-Mar ..	66	1,143	1	3	1,536	11	11	2,679	13	2	17	6	2	23	5	5
Black River ..	73	970	13	9	1,501	1	2	2,471	14	11	13	5	11	20	11	2
Mandeville ..	39	929	2	4	859	4	1	1,788	6	5	23	16	4	22	4	1
Chapelton ..	39	893	18	3	813	7	0	1,707	5	3	22	18	1	20	17	2
Lionel Town ..	47	849	19	6	879	1	10	1,729	1	4	18	1	7	18	14	1
Spanish Town ..	67	1,066	9	5	1,383	6	10	2,449	16	3	15	18	3	20	12	11
Linstead ..	40	927	6	7	910	16	8	1,838	3	3	23	3	5	22	15	1
	1,420	36,262	12	11	44,176	11	9	80,439	4	8	..			..		
Lunatic Asylum ..	1,952	22,405	8	0	19,090	13	8	41,496	1	8	11	9	7	9	15	7

II.—Return showing the value of Drugs, etc., supplied to the various Institutions from the Island Medical Stores from 1.1.35 to 31.12.35.

	£	s.	d.
Value of Drugs and Sundries issued to Public General Hospitals, Lepers' Home and Medical Districts ..	5,646	16	7
" Stimulants issued to Public General Hospitals ..	24	3	10
" Drugs, etc., issued to Kingston Public Hospital ..	4,784	10	6
" Stimulants issued to Kingston Public Hospital ..	27	7	5
" Drugs, etc., issued to Jubilee Hospital ..	250	6	1
" Stimulants issued to Jubilee Hospital ..	0	10	9
" Drugs, etc., issued to Lunatic Asylum ..	242	11	7
" Drugs, etc., issued to Prisons and Industrial School	271	2	0
" Drugs, etc., issued to Department of Agriculture ..	10	19	2
" Drugs, etc., issued to Quarantine Board ..	0	12	10
" Drugs, etc., issued to Parochial Boards ..	849	9	2
" Stimulants issued to Kingston and St. Andrew Corporation	0	10	4
" Drugs, etc., issued to Constabulary Department ..	54	15	1
" Drugs and Sundries sold	299	2	7
" Lymph issued to District Medical Officers ..	449	2	6
" Lymph sold	11	1	3
" Drugs, etc. issued to Hookworm Commission ..	144	3	10
" Quinine issued to Post Office for Packets ..	691	0	0
" Drugs issued for Fumigation	62	3	1
" Quinine issued to Schools	39	11	8
" Quinine issued to Estates	6	5	0
" Drugs, etc., issued to Jamaica Government Railway	28	7	8
" Drugs, etc., issued to Tuberculosis Clinic ..	476	7	4
" Drugs, etc., issued to Malaria Commission ..	54	10	11
" Drugs, etc., issued for the Control of Epidemic Diseases	92	19	5
" Drugs, etc., issued to Yaws Commission ..	513	6	7
" Drugs, etc., issued to Womens' Free Clinic ..	49	11	0
	£15,081	8	2

III.—Return of Cases in the Kingston and St. Andrew Corporation Hospital for Infectious Diseases (for 5-year period).

Admission.	1931.	1932.	1933.	1934.	1935.
Chicken Pox ..	31	69	19	..	1
Measles	31	45	13	..	..
Syphilis	11	..	4	..	..
Diphtheria	..	..	..	1	1
Yaws	3	..	1	..	..
Whooping Cough ..	..	1	..	..	..
Mumps	..	..	..	..	..
Scarlet Fever ..	10	..	..	..	..
Leprosy	1	2	1	..	..
Impetigo	..	..	1	..	..
Under Observation ..	..	3	..	..	..

H. M. JOHNSTON,
Acting Medical Officer of Health, Kingston and St. Andrew.

CONTENTS.

(PART II.)

MEDICAL DEPARTMENT.

Report for the year ended 31st December, 1935.

(PART II)

Co-Operative Public Health Work in Jamaica during 1935.

I. Bureau of Health Education.

Co-operative public health work between the Government of Jamaica and the International Health Division of the Rockefeller Foundation began in 1919. During the past seventeen years the following eleven units of activity, conducted in the nature of demonstrations, have been undertaken: (1) Hookworm Commission; (2) School Hygiene Unit; (3) Bureau of Health Education; (4) School for Sanitary Inspectors; (5) Malaria Commission; (6) Parochial Health Departments; (7) Tuberculosis Commission; (8) Yaws Commission; (9) Improvement of Public Water Supplies; (10) Training of Health Workers; and (11) A Study of the Vital Statistics Department of the Island. All of these have received the co-operation of officials and of the people and have been highly successful. From the beginning all the co-operative work has been conducted under the direction of the Superintending Medical Officer and the Central Board of Health. Each year the Local and Central Government have assumed an increasing proportion of the costs of the co-operative units; during 1933 they took over the entire financial responsibility of the Hookworm Commission, the Malaria Commission, the School for Sanitary Inspectors, and the Parochial Health Departments; in 1934 the School Dental Clinics and the clinical work of the Tuberculosis Commission.

During 1935 the co-operative programme was in connection with the Bureau of Health Education, the Tuberculosis Commission and the Yaws Commission; while Mr. E. H. Magoon, the engineer of the Foundation Staff, continued to assist the Central Board of Health in improving water supplies, sewage disposal and drainage throughout the Island.

The Bureau of Health Education was established in 1926 to meet the demands of teachers, sanitary inspectors, and citizens, for detailed information regarding personal hygiene, and the spread and prevention of disease. As its name implies, it has had for its object the development of a public health consciousness among the people and in carrying out this object has conducted educational campaigns throughout the Island. Education in public health is of most value when used as an opportunity of putting precepts into practice; because of this, the work of the Bureau of Health Education has been largely confined to such public health problems as have received practical consideration in the Colony.

Jamaica Public Health, published by the Bureau during the past ten years, has enjoyed the assistance and co-operation of health officers, doctors, teachers and citizens interested in the welfare of the people; and, especially is this true of the staffs of the Government Printing Office and of the Post Office Department, without whose aid the periodical could not have made its monthly appearance for ten years without a single issue being delayed. A glance through the table of contents of any volume will show the scope and variety of the articles which have appeared and call attention to the practical nature of the bulletin. It is likely that the demand for the periodical has been so great because the articles have been practical. During 1935, special articles appeared on the Venereal Disease Menace, the Ganja problem of the Colony, Leprosy and Tuberculosis. Each month for the past six years an edition of 20,000 has been sent out; all but a few hundred go to addresses in Jamaica. More than 250 of the larger schools of the Colony use the bulletin as a text in hygiene in their higher forms. There is a demand from teachers and others for more copies, and an increase to 25,000 copies each month has been needed for several years. Outside of Jamaica the list of persons who have asked to have the bulletin sent to them includes health and social welfare workers in the following 56 countries: Argentine, Australia, Barbados, Brazil, British East Africa, British Guiana, British Honduras, British West Africa, Canada, Canal Zone, Cayman Brac, China, Colombia, Costa Rica, Cuba, Cyprus, Dominican Republic El Salvador, England, Fiji, France, German, Grand Cayman, Grenada, Guatemala, Haiti, Honduras, Hungary, India, Italy, Java, Leeward Islands, Malta, Mauritius, Mexico, Montserrat, Nicaragua, Nigeria, Panama, Paraguay, Philippine Islands, Poland, Puerto Rico, St. Helena, St. Lucia, St. Vincent, Seychelles, Sierra Leone, South Africa, South India, Switzerland, Trinidad, Turks Island, United States of America, Venezuela and Zanzibar.

It may be of interest to add that requests have been received for permission to republish articles and health plays which have appeared in the bulletin, or to reproduce placards, in English, Spanish, Greek, Hindu and Chinese.

In addition to the publication of the monthly bulletin, suitable literature is provided on the problems which are being dealt with by the health departments of the Island. Assistance has been given health workers through the provision of moving picture projectors and films, magic lanterns and slides, and material for microscopical demonstrations. Also special leaflets and posters and placards, designed for use in schools, at markets, and other public places, to give information about the more common diseases, are distributed. During 1935, the Bureau of Health Education sent out 41 different publications; the total number of pieces of public health literature distributed being above 400,000.

A branch of the Bureau of Health Education is the Division of Prenatal Work. A set of nine letters (one for each month of pregnancy) is sent to expectant mothers to teach them the normal changes which occur during pregnancy and the dangers which should be looked for and avoided; the names of such mothers being supplied by health officers, sanitary inspectors, nurses, and social welfare organizations. During the year 10,104 letters were mailed to 1,182 expectant mothers.

In a way, *Jamaica Public Health* is an expression of the growth of, and the interest taken in, public health by the people of the Colony. It is because the officials and the people have been interested and supported such work that an outstanding reduction in our death rate has been brought about. This interest has made it possible to develop effective means of controlling contagious diseases through organized health departments whose work has placed Jamaica among the first of the Colonies of the Empire in the attention paid to the public health.

II. The Tuberculosis Commission.

The Tuberculosis Commission.—In 1927 Government invited the Rockefeller Foundation to co-operate in a study of tuberculosis as it exists in Jamaica. Professor Eugene L. Opie, of the University of Pennsylvania and now of Cornwell University, was secured to direct the study. He visited the Island in 1928 and supervised the establishment of a study clinic in Kingston to obtain direct contact with patients suffering from the disease in order that observations could be made of the forms, nature and course of the infection in individuals, family groups, and the influence of conditions of living upon its distribution. In 1931 an X-Ray Laboratory was opened in connection with the Kingston Dispensary and during the same year, in order to broaden the work of the Dispensary and gain a wider view of tuberculosis as it exists in a tropical country, enlarged and more extensive studies were begun in Kingston and a number of smaller towns and in rural sections of the Island.

Tuberculosis control in Jamaica has been developed by Government in connection with the work of the Kingston Dispensary, the X-Ray Laboratory, and the Surveys of Special Districts. Along with the activities of these units, pathological studies have been developed as well as special studies of the tuberculin test at the Dispensary, the Mental Hospital, and the Government Industrial School. Based on the information obtained as a result of the studies of the Tuberculosis Commission, taking into consideration the procedures by which control measures are being instituted, a report was prepared by Dr. Opie containing recommendations for the organization of control measures in Jamaica and submitted to Government on August 13, 1933. This report recommended the organization of tuberculosis work at hospitals, parish infirmaries, and dispensaries. A Central Clinic and Training School in Kingston, with tuberculosis wards in the district hospitals, and the training of physicians, nurses and sanitary inspectors in tuberculosis control, formed the basis of the plan. The report was approved by Government at the close of 1933 and steps are now being taken to organize the Colony's tuberculosis control measures on a permanent basis.

III. The Yaws Commission.

The Yaws Commission was organized in 1932 to study the disease with the view of discovering the best ways of control. The development of the study led to the organization of a Research Unit, two Treatment Units, a Central Laboratory, and a Yaws Survey of the Island.

The Research Unit has made special studies of (1) The central nervous system in Yaws; (2) the collection of histological specimens; (3) Cardio-vascular involvement; (4) Transmission of the disease; (5) Role played by Hippelates flies in the spread of Yaws; (6) New Drugs; (7) Old treated cases; (8) Comparative studies of Yaws and Syphilis.

Two Units have been engaged in treating patients. this work with the educational and follow-up campaigns being designed to control the disease. Effective methods have been devised for locating patients and for treating them until they become non-infectious. As a result of experience gained by the Yaws Commission, Government has now systematized control work through the Parochial Health Departments and the District Medical Officers.

IV. Conclusion.

The development of co-operative health work in Jamaica is the story of how the principles o preventive medicine have been carried to the people and of how the people have come to recognize the importance of applying these principles in their home. The result has been improved health, improved living conditions, and a marked decrease in the death rate of the Island—28.3 per 1,000 in 1921; 18.6 in 1931; 17.2 in 1932; 19.3 in 1933; and 17.0 per 1,000 in 1934. Jamaica has learned that public health is purchasable and that full realization of the benefits to be derived from health conservation can be found only in providing and maintaining well equipped health departments. In this respect, Jamaica now ranks high among the Colonies of the British Empire and above most tropical countries. Improved conditions of health mean improved conditions under which the people live and work; these things have made the Island a better place in which to live.

B. E. Washburn,
Director of the Rockefeller Foundation in Jamaica.

V. Report of the Malaria Commission for 1935.

Morbidity and Mortality.

Malaria retains its position as one of the major Public Health problems of the Island. More people are confined to their homes as the result of Malaria than from any other disease, and its adverse effect as a factor in the economics of the Island must be studied chiefly from that angle. Its mortality is relatively high, with periodic exacerbations associated with years of high rainfall and other less studied factors which facilitate transmission of the Malaria parasite and increase its virulence.

Possessing as we do, a drug specific to the disease, viz. Quinine, and in recent years effective synthetic drugs for additional use, this high mortality rate invites grave consideration. Signs of appreciation of this gravity are not wanting.

(1) The high incidence of Malaria and its death rate has resulted in increased facility for obtaining free and cheap treatment. Quinine is now generously distributed when the need arises. The number of Dispensaries from which such treatment can be obtained has been increased. Appreciation is shown in the steadily increasing numbers of those seeking such treatment, and the value of Health Education is also noted in treatment being sought earlier in the course of the illness than formerly.

(2) Refinements in the application of the specific drugs are also noted. The physician, faced with a serious case of Malaria on reliable diagnosis, is no longer content with an exhibition of Quinine or its congeners, but dispassionately studies the clinical aspects of the case, and may consider it advisable to treat certain grave symptoms, such as those resulting from severe dehydration, and, when ameliorated, follow by specific remedies.

(3) Malaria occurring in epidemic proportions is now more promptly reported and adequate arrangements for combating it are equally prompt. In two instances outbreaks were anticipated and observations regularly made to prevent or lessen the incidence and death rate.

(4) Increasing extension of control measures against malaria conveying mosquitoes is now our most reliable method of attack. It is the logical method.

Extent and Distribution in 1935.

In 1935, the period of increased fever incidence was shorter and more circumscribed than the preceding years from 1931. All Hospitals treated less malaria than in 1934. The incidence was low from January to September. In the last quarter of the year fever increased sharply in the Corporate Area, St. Mary, Upper St. Catherine, to a lesser extent, St. Ann and Clarendon. Rainfall, partial immunity, effects of control measures, and periodicity, play definite parts in the picture of the diminished incidence as follows:—

Rainfall.

The Island rainfall for this year is 71.13 inches, a deficiency from the 60 years average (73.87 inches) of 2.74 inches. In the first half of the year, the rainfall was 26% below the average, but in the second half it was 12% above. The partial drought condition of the first half of the year was the main factor in preventing high fever incidence in July, August and September; a special feature of recent wet years. Heavy precipitations occurred in August and September which continued in October and conditions, favourable for increased transmission, resulted.

Immunity.

High Communal Immunity resulting from consecutive years of high fever incidence, neutralised the adverse effects of high rainfall, notably in Westmoreland, in which increased Malaria was noted from 1931. This year's rainfall was 90.03 inches as against the 10 year average of 83.72 inches.

Periodicity.

Partial immunity so acquired gradually wanes in subsequent years and exhibits alternate periods of high and low Malaria. An observation of variation of spleen rate and size appears the best guide. An example of this has been noted at Bull Bay, an uncontrolled area, which has been under observation for the past six years. Fever in epidemic proportions appeared in 1930, a year of normal rainfall. In 1931, a year of high rainfall and widespread epidemic, a few cases of fever appeared for two weeks. In 1932, 1933 and 1934, a slight seasonal increase was noted in November and December. In January 1935, a spleen rate of 60% was observed in the school children which, at the end of the first half of the year, was less than 30% and the size of these were smaller than at any time during the past six years. The local Health Department was warned that an outbreak was impending which happened in the last quarter of the year with a relatively high death rate.

Control Measures.

The beneficial effects of control measures in the reduction of morbidity and mortality are best exemplified in the reduction of admissions of certain hospitals in which the total population residing in controlled areas form an appreciable moiety of the population served by such hospitals, for example, Hordley, Montego Bay, Falmouth and Black River.

Malaria in Epidemic Form.

Increase of Malaria both inland and along the coastal plain during the last quarter of 1935 has already been mentioned and will be further elaborated where control areas have been affected. There were no epidemics in coastal areas in 1935 as noted in four previous years. Fever in epidemic proportions was noted in two inland areas.

(1) *Aberdeen in St. Elizabeth at an elevation of about* 1,000 *feet above sea level.* Malaria conveying mosquitoes (A. Albimanus) were bred in a pond formed by blocking a hill stream by a road built across it without suitable culvert. It was of short duration with high death rate. Treatment was promptly exhibited as soon as reported. An outbreak of fever was noted the previous year but to a less extent.

(2) *The districts in the vicinity of the Moneague Lakes.* "Lime Sinks" are a characteristic feature of the uplands of certain parts of the Island. In years of unusual rainfall they may affect the Malaria problem in various ways. The majority do not retain water although without visible outlet. Some retain for temporary periods but not long enough to be a source of danger. In many, repeated inundations have given rise to permanent ponds which may support breeding up to 1,500 feet above sea level. These lime sinks derive their water from precipitation only.

Certain of these large sinks adjacent to mountains, notably at Moneague, Harmons near Porus, in the vicinity of Mile Gully, Kinloss and Haddington, are rapidly filled from underground springs and retain water in the form of lakes for long periods.

Many years fortunately intervene between these periods of lake formation. Those mentioned by name above all appeared in the Autumn of 1933 after the unprecedented rains beginning in August.

The Harmons lake at 700 feet elevation was early followed by an epidemic of Malaria with high death rate. Quinine, the only method of control, was unsatisfactory as far as checking mortality was concerned. The fever lasted until the lake subsided.

Lakes in the vicinity of Mile Gully gave rise to fever for three weeks when they were subsiding.

Kinloss Haddington appeared later; all residents were affected and the situation eased only after control measures with oil and Paris Green were started. The death rate was high.

Moneague is a plateau in the parish of St. Ann at an elevation of about 1,000 feet above sea level. It is below and adjacent to the northern slope of the Mount Diablo (a part of the central chain of mountains crossing the Island from east to west.) These lakes appear at long intervals, the last time in 1916. Extensive tracts of lands are inundated eastwards from the village and forms a picturesque sight from the high ground. The principal ones are the Moneague, nearest the village, and Tadmore separated from the former by high ground about a half mile across Sub-aquatic vegetation appears early in these lakes. Surface vegetation such as Spirogyra is almost absent. After a period of steady rise of water, fluctuations in levels occur which allow vegetation to appear on the surface followed by submergence. With the gradual fall of the lake, which is the beginning of its disappearance, vegetation spreads out on the surface in varying extent according to the depth of the lake. At the beginning of the year all other lakes mentioned had disappeared except those of the Moneague area and with them their Malaria problem.

Breeding of Anopheles was first noted in February of 1935. (The lake appeared in 1933). The shore line nearest the Moneague lakes appeared to have been first affected also ponds in the village. The breeding soon became dense. The larvae were of the Malaria Vector (A Albimanus) only. It was realized that the presence of a few gametocyte carriers would quickly initiate an epidemic. Carriers might come from two sources (1) labourers who returned to their homes ill with fever from working in the coastal plains or other endemic areas or (2) those who paid transient visits to infected areas, the nearest being Gayle not many miles from the districts east of the lakes. Anophelines were thought to have been brought either in closed cars of visitors to these lakes or from extension of breeding from water collections along the route to Gayle in property ponds.

Anticipatory Control Work.

When the epidemic appeared in the settlement around Harmons it was thought that the water surface supporting breeding of anophelines was too extensive to be effectively controlled and recourse to quinine was the only hope. A similar course was followed at Kinloss and Haddington. The results were unsatisfactory, both in number affected, and in the high death rate.

Malaria has been noted at Moneague by the District Medical Officer but the origin of the few cases seen was not investigated. No epidemic has so far been reported but has been anticipated as far back as the year 1867.

Control of the extensive shore line appeared a difficult task. It was however decided that an attempt should be made. The method selected was the removal of dense vegetation which was supporting breeding and allow top minnows to destroy the larvae. Paris Green was used where breeding outstripped cleaning and subsequently we were forced to use Paris Green first, followed by cleaning where breeding was very dense. As the lake receded abundant chara vegetation was exposed which dried rapidly and could be easily reduced to a fine powder most suitable as a diluent for Paris Green. An excellent film resulted. The small staff employed—one Sanitary Inspector and two labourers—with the aid of a boat was able to control the shore line nearest the village of Moneague and to this early effort is attributed the successful prevention of fever in epidemic form in this village when other districts suffered.

The settlements of Riverhead, Roadside and Clapham are east of the lake and separated by it from Moneague. It was in these districts that the fever first appeared. The writer has failed so far to find records of previous occurrence of Malaria in these districts. It has an important bearing on the Malaria problem in rural areas where breeding in large bodies of water is to be successfully encountered and merits an extended study for future reference.

Fever began in these districts in March, 1935 and was treated by teachers with quinine obtained from an indirect source. It was not until mid-April that one case appearing moribund was sent to the District Medical Officer at Moneague who promptly sent a smear which was positive. This came from Clapham. A full investigation was made and blood smears taken, all of which were positive for Malaria. Anti-malarial measures were extended. Two boats with outboard motors, ten labourers under a Sanitary Inspector and one nurse to distribute quinine mixture and help patients generally, were employed. These prompt measures averted panic and resort to local experiments of healing which so often precipitates fatal symptoms. Quinine mixture, Magnesium Sulphate and the distribution of Plasmochin was the routine treatment. All treatment ceased when the fever subsided and was not again exhibited until relapses occurred. These relapses were few. About 500 cases were so treated; only a few of these were seen in the Moneague area. There was only one death, Malaria being a secondary cause.

The early control measures in the vicinity of Moneague prevented an outbreak. The severity of the fever in other districts was modified by quinine and the number of relapses reduced by control work.

As this was the first attempt of control in such a large body of temporary water, the largest that occurs here, the occurrence of fever was of value to remove doubt that anticipatory methods are useful, that had they been begun earlier, the outbreak could have been prevented, and that other large bodies of water can be so treated as at Harmons or in the large temporary accumulations in the Queen of Spain Valley.

The control measures on the lake continues under the Medical Officer of Health and fever has almost ceased.

Areas under Control.

Caymanas in St. Catherine.

This area has been 6½ years under control. The control has been satisfactory. In 1931 a high incidence of fever appeared, but this has not since been repeated. Paris Green is the anti-larval measure used. This year the work in cleaning drains has been increased.

A new sugar factory was erected and necessitated skilled labour from abroad and more labour from other parts of the Island, but the persons so employed, were not affected.

The testing of the blood, for Malaria, of all new arrivals, continued, and those found positive are treated until the peripheral blood is parasite free. This also applies to cases of fever developing on the property. Thirty-three persons complained of fever during the year and seven were positive for Malaria. 10% of the 50 examined for splenic enlargement were positive—2% imported, 1% developed during the year, and 6% were old fibrotic spleen in the East Indians. Of these, racially, 2% were natives and 8% East Indians.

All cases of fever occurring in the Area during the year were treated with Quinine until no parasites were found in the peripheral blood. Blood smears were taken from 144 arrivals from different parts of the Island who were subsequently employed as labourers—8 of them were positives for Malaria. These were also treated until negative.

To this combination of anti-larval control and treatment is attributed the excellent condition of the area and efforts will in future, be made to imitate it in other areas, when possible.

Bernard Lodge in St. Catherine.

As a result of the success of lowering fever incidence in the United Fruit Company's properties in Vere and due to the high incidence of Malaria in Lower St. Catherine, the Company decided to start control work on 17 of their properties. This work began in June 1934 with one Inspector, trained by the Commission and paid from its vote, and five labourers paid by the Company, the Company also supplying Crude Oil and transportation. Oiling and ditching are the chief anti-larval measures. Paris Green is used in areas far from dwellings. The response to control has been prompt, as has been already noted in early efforts, where a high fever incidence obtains. It is proposed to extend this area east and north to meet the Caymanas area.

Braeton, a small village, forms part of the southern boundary of the Bernard Lodge area, and was at one time under experimental control for one year to estimate the anti-larval value of ditching and cleaning of drains. Before this control the spleen index was 30% and blood index 42%. This was reduced by eliminating most of the water passing through the village and drainage of large swamps to the east of the village by the United Fruit Company in the extended system of agricultural drainage.

Vere in Clarendon.

Work began in January, 1930. The extent of the area is 9 miles by 4. The fever incidence slowly but steadily declined since control started. The heavy rainfall of August, September and October of this year increased the water surface to such an extent that the staff of five labourers was unable to adequately control it. Fever increased during October, November and December but without disorganising the labour gangs to any great extent.

Of 100 children examined at the Alley School, 16 showed splenic enlargement: of these, 5 came from outside areas at Rocky Point and 5 from Longwood, at the western extremity of the control area, only a part of which is under control.

The spleen size has not increased and the East Indians children in the centre of the area show a marked improvement in the absence of enlarged spleens.

At the beginning of the financial year, the United Fruit Company, on whose properties this control is maintained, took over the Sanitary Inspector and all other expenses of the area with the exception of the Paris Green, a small amount of which is used to control breeding away from residences and barracks.

No other control activity was started in the parish in which this area is located, but there is every reason to hope for needed extension during the coming year.

Porus in Manchester.

The epidemic of 1933-34 left but few relapsing cases behind. The permanent drainage programme in and behind the town, is progressing. Earth excavated from drains has been used to fill the depression in the vicinity. A culvert, carrying concrete inverts, has been placed under the road to Harmons. This project is a joint one of the Public Works Department and the Parochial Board.

Black River in St. Elizabeth.

The fever incidence in this area remained low during the year. It was not affected in the last quarter, as was expected.

The spleen index in the school has, however, remained high since the outbreak of 1933. Of 50 children examined for spleno-megaly, 10 were positive. The Police appeared to have suffered abnormally.

The banks of the Black River have been kept in excellent condition. The filling in of the swamp has not kept pace with last year's effort in this respect—material was difficult to obtain in spite of the help given by the Public Works Department.

The extension of control work in this parish is difficult as, apart from extensive swamps, property ponds and temporary water collections after rain are the main problems. Moreover, these are often far apart, and the time of labour would be chiefly spent in moving from one water collection to another. In addition the population outside of Black River is scattered. A short but sharp epidemic appeared at Aberdeen in the hills due to the blocking of a stresm by a road. The resulting pond supported breeding of A. Albimanus. About 250 cases was reported with a high death rate. The outbreak was treated by the Medical Officer of Health.

The owner of the property of Hodges asked for a survey to control Malaria. The problem of many and very large ponds was regarded as not worth attempting, with regard to the size of the population to be contracted, and treatment by quinine was advised when fever appeared.

Sav.-La-Mar to Little London (Westmoreland).

Sav.-la-Mar in Westmoreland.

This area was extended eastwards along the road to Black River, nearly to Ferris, a distance of 6 miles from the town. This extension consists chiefly in cleaning and ditching the many streams crossing the main road. The property owners assisted to the best of their ability. An extension was made northwards to the settlement of Strath Bogie Ditching and cleaning of rivers and ponds are the special features of the

area. An attempt has been made to train the streams and have them ready to funetion in the rainy season and prevent overflow.

In spite of inereased rainfall over the normal, Malaria has been lower than any year sinee 1931.

The Paroehial Board has assisted with labour and earries out a dumping programme. The Medical Offieer of Health takes an active interest in the work and the securing of additional co-operation is left entirely to him.

Little London.

The swamp and pond drainage programme continues. About 65 aeres of reelaimed land is now established in canes. The local Publie Works Department has given exeellent assistance in lowering eulverts and making new ones. More work of this kind is promised. The extensive drainage eaused a shortage of water of poor quality and forced the provision of a proper supply.

The fever incidenee is low. The spleen rate remains high although the size or index has diminished.

Sandy Bay in Hanover.

The Medical Offieer of Health reports that an experiment to establish dense shade at Sandy Bay was successful. The Malaria Veetor (A. Albimanus) avoids ovipositing in water densely shaded. In our anti-malaria work shade is encouraged, but funds have not permitted definite experiments. Observations of such plant life as would be most suitable, especially combining slow obliteration of water eolleetion by coalesence of their dense root system, has been studied.

No excursion was made by us in this parish as no work was contemplated. The number of deaths (22) from Malaria suggest the need of control work.

Montego Bay in St. James.

Extension of control areas and establishment of new areas, aims at the reduetion of mosquitoes as near to a margin of safety as possible, and the fever ineidenee is our main guide as to the suceess of our work.

In Montego Bay, the important tourist centre of the Island, especially before, during and sinee the coming of Royalty to the Island, Malaria conveying mosquitoes have been reduced below the margin of safety. The majority of ehecks of night flight in the vieinity of the hotels have been negative and those in other areas nearly so. The result has been very satisfactory and this is refleeted in hospital admissions from the area, and in the result of splenic examination, in spite of the fact that many of the labouring classes make weekly exeursions, and some for longer periods, into malarious areas in their own and other parishes and when infected, return for treatment and convalescenee.

In this connection, the encouragement given by the Acting Medical Officer of Health to property owners to control mosquitoes, especially at Rose Hall, a large cane property 10 miles from the town on the road to Falmouth, has been much appreciated and the Sanitary Inspeetor of the Malaria Commission at Montego Bay has assisted in teaching and eheeking the property staff. More work of this kind is needed.

In March of this year, the Malarial expert of the Rockefeller Foundation examined 50 infants from the section of the town where Malaria has always been strongly endemie and expressed pleasure and surprise at 4% of enlarged spleens in these children. All water colleetions in the residential areas of the north and middle two-thirds of the town have been obliterated. The swamp to the north beyond the hotel areas forms one part of the problem, and that in the part of the residential areas to the south and beyond it, forms the seeond, and most extensive breeding area. The filling of holes in limestone rocks, when holding water and whether supporting breeding or not, eontinues.

The reeommendations for drainage of the swamp made in 1934 have not been aeted on as reelamation is desired to allow the town to develop northwards towards Falmouth. Co-operation by the Loeal Board of Health is relatively poor when the results at stake are considered.

Studies of the malaria incidence at Montpelier and the vieinity were made, for the information of the Military authorities, as to the suitability for a eamping site, and temporary mosquito control was established.

Falmouth in Trelawny.

The malaria experienee of this area has been very satisfaetory in spite of many lapses in the quality of the work. Medieal treatment in early stages of those affeeted, has improved. The filling programmes continue. It is slow owing to the lack of funds for transporting filling material. Attempts have been made to press property owners to undertake more extensive work—this has met with partial success and gives promise of further development.

Moneague in St. Ann.

The prominent feature of the year was an outbreak of Epidemie Malaria at Moneague. This is dealt with under Epidemie Malaria. Sporadie inerease was noted in the eoastal plains in the last quarter of the year and has so oeeurred sinee 1931 although the seasonal prevalenee has been usually in July, August and September. The Medical Offieer of Health is taking a keen interest in the study and amelioration of the malaria problem.

A re-survey of the parish was undertaken in February, 1935, ehiefly of Anopheline breeding and eliecking of night flights at important points. His Royal Highness the Duke of Gloucester was expeeted to take up residenee at Shaw Park. A night catch there showed one adult a eulex—no larvae were found on the grounds.

The survey showed that breeding places of Anopheline had increased in number. They were less at Ocho Rios and its environment The thoroughness of the survey was materially assisted by the positive blood results and colleetion of anopheline larvae made in 1928. As at Bamboo, the ehildren were grouped by distriets and the district from whieh ehildren gave a history of malaria was carefully examined and anopheline breeding thus easily loeated.

Annotto Bay in St. Mary.

A high and continued rainfall during the second half of the year, with high seas which prevented the usual "wash" effect as in former years, resulted in inudation of this area and an increased water surface, supporting breeding. Temporary larvicides of oil and Paris Green were partly ineffective. In addition, an area of small dense canes in the vicinity of the hospital and in the town limits, obscured drains which could not be effectively treated. One large swamp just beyond the eastern limit of the town which had never showed breeding since the work started, shared in the inundation and supported dense breeding. It was flooded from road drainage and flora changed. A high fever incidence was noted from the middle of October through November and December. Those affected responded readily to quinine. The spleen rate of the area as examined in December has increased. Control in cleaning of the stream at Iter Boreale, one-quarter of a mile east of the town limit, has been more satisfactorily done this year than last. The labourers in barracks have benefitted.

Wag Water Valley Area.

This area is contiguous with the western end of the Annotto Bay area—the main road from Kingston divides them. Its northern limit is the bridge across the Wag Water river which leads to Clonmel and Highgate and in a westward direction includes the properties of Orange Hill, Water Valley, Coleraine, Rose End, parts of Agualta Vale and Bellfield, and the Robins Bay Golf Club.

The problem consists of the Wag Water river especially when drought conditions obtain, and outcrops of water, bayous, and grassy banks support and protect larval breeding. The Bellfield Haughton Newry and Back Rivers open in a common channel before entering the sea, also ponds, drains (for agricultural purposes) and low lying areas are added. In recent years the Wag Water River has overflowed its banks to such an extent that inundation of the main road has occurred at the junction of the main from Kingston to Annotto Bay and Port Maria, to say nothing of a large body of water which lasts for a long time between the right bank of the river and the main road. The training of the stream, by a long earth embankment planted with grass with extensive and tenacious root system, promises success.

The cost of the programme, with the exception of the Sanitary Inspector, is borne by the Standard Fruit Company. It is a part of the programme that the Sanitary Inspector can be removed at any time and a Sanitary Foreman provided by the Company can do the work of supervision. One is now being trained for the Company by us. A high but scattered incidence of fever was noted from October along the coast and uplands of the parish. Admissions to hospitals were high and a large number treated in the Outdoor Department. An outbreak was mentioned in the public press at Oracabessa which, on investigation, showed only a few cases in the outside Zone and this was made a peg on which to hang various complaints resulting from depression in that neighbourhood.

Buff Bay in Portland.

Intensive anti-malarial work of filling and drainage was done in this area by the resident Sanitary Inspector employed by the Parochial Board at the instance of the Medical Officer of Health. Filling material was supplied by the Public Works Department. In 1933 and 1934 the Commission assisted in inspection and examination of material sent. Marked improvement was then noted and on the report of the present Medical Officer of Health, is maintained. One excursion was made in this parish to report on condition of the swamp at Orange Bay with a view to filling. Manchioneal contributed its quota of cases to the Hordley Hospital and are included in the admissions of that hospital. A re-survey of the parish is promised.

Golden Grove or Port Morant Area, (St. Thomas).

The control of this entire district has continued successfully. The property owners have kept their contract of supplying labour material and one Assistant Sanitary Inspector. The co-ordination of this support is left entirely in the hands of the Manager of the Jamaica Sugar Estates, Ltd., who, on an attempt of one of the property owners to cease co-operation owing to financial stringency, wrote in part, to the Attorney stressing the necessity of continuing support, as follows:—

> "Since you may not be aware of the facts, I would like to bring to your notice the work and the results of the Commission in this area.
>
> "Up to 1933, anti-malaria work was done over a small area with Golden Grove as its centre. No support was given by the planters, with the result that malaria in this district, according to the records of the Malaria Commission, was about the second highest in the whole Island.
>
> "Life in this area was generally hazardous, and this Company actually carried surplus staff against casualties from the disease.
>
> "At the beginning of 1933 this district started co-operative work in support of the Commission and since then some 13 labourers have been constantly employed all over the valley. All the worst breeding grounds of the Anopheles have been located and are attended to regularly once a week by the Commission workers. The work entails keeping drains clean and running and the application of oil and Paris Green at all breeding places.
>
> "As a result of these efforts, the incidence of Malaria in this district has now been reduced according to the records of the Commission to about the second lowest in the Island. The contributions of this Company amount to over £200 per year in which is included the free supply of oil for all estates, housing of the Sanitary Inspector, Sanitary Foreman and Labourers, etc., and we find that this expenditure has given a splendid return in the betterment of the health of our employees and labourers. Everything, however, depends on the continued maintenance of the service and any suspension of the activities would without doubt cause a relapse to the former disgraceful conditions."

Eighty-one cases of malaria was admitted during the year, i.e., less than 7 per month from an area of 60 square miles. There was an increase in October, November and December following the heaving rains.

The Manager of the Jamaica Sugar Estates, Ltd., then increased the number of labourers to 10. Oil was generously distributed and the increase of Anopheles and Culex was abated in two weeks.

100 children examined at Golden Grove School gave a spleen index of 26%. The sizes are given in table below:—

	Sizes.				
	P.	1.	2.	3.	4.
8% Dickenfield	6	1	1	..	..
2% Stokes Hall	1	1	0	..	..
3% Wheelerfield	1	0	2	..	..
8% Golden Grove ..	1	3	1	2	1
3% Hordley	1	0	1	1	..
1% Hampton Court	0	1	..	..	..
1% Rocky Point	1	..	..	..	..
26%	11	6	5	3	1

Duckenfield and Golden Grove are the centres of the unsettled population and has a large East Indian quota.

Other schools examined were—Bath 26%—75 examined. Districts as follows:—

	Spleen Size.			
	P.	1.	2.	3.
9.33% Bath	5	1	0	1
6.66% Ginger Hill ..	2	1	2	0
2.66% Church Lane ..	0	1	1	0
5.33% Bottom Yard ..	2	1	0	1
1.33% Fountain Road ..	1	0	0	0
1.33% Mansfield ..	1	0	0	0
	11	4	3	2

Amity Hall 47.5%. No fever incidence noted. Examined 40. Districts as follows:—

	Spleen Size.				
	P.	1.	2.	3.	4.
42.5% Amity Hall ..	3	8	6	0	0
2.5% Duckenfield ..	0	0	1	0	0
2.5% Quaw Hill ..	0	0	1	0	0
	3	8	8	0	0

Port Morant School—100 examined—12% positive. Districts as follows:—

	Spleen Size.				
	P.	1.	2.	3.	4.
2% Port Morant ..	2	0	0	0	0
3% Harbour Head ..	2	1	0	0	0
1% Harbour Head Road ..	1	0	0	0	0
3% Leith Hall	3	0	0	0	0
3% Pear Tree River ..	3	0	0	0	0
	11	1	0	0	0

Airy Castle—50 examined. 10%.

	Spleen Size.				
	P.	1.	2.	3.	4.
4% Airy Castle	2	0	0	0	0
6% Grossett	3	0	0	0	0
	5	0	0	0	0

Marked improvement is noted at Bath School, especially from Bottom Yard. In spleen size, Ginger Hall, west of the town shows the highest incidence.

Serge Island.—Control work started in July, 1935. With Serge Island as the centre, the work has extended to Seaforth, Hall Head, Coley, Trinity Ville. Breeding in the rivers and ponds is the chief problem. There is no co-operation in this area, except at Serge Island. The Inspector and three labourers are paid by the Estate.

Port Morant in St. Thomas.

The spring ditching programme by the Parochial Board on a £50 vote affects the western end of the town from the Ice Factory. The outcrop in Johnson River in dry years adds to the problem. No distress signal from this area.

Yallahs.

No unusual incidence—less in past year. Dry gullies and one small stream, are the chief features of the problem.

Albion.

No increased incidence since 1930 when dwellings were relocated by drying the nearer portions of the swamp by a central ditch and pump at its end, and water used for irrigation. Grants Pen is affected by this drainage and increased dense vegetation. No enlarged spleens at the Bull Bay School, in children from Grants Pen.

Bull Bay in St. Andrew.

Epidemic Malaria at Bull Bay called for prompt action to prevent morbidity and mortality rates and the adverse effects on the working capacity of the population, being at that time engaged in collecting metal from the sea for road construction.

The protection of visitors from the city and abroad had also to be considered as many as 120 per week visited the attractive beach club at night. One family rented a cottage at the seventh mile and were all affected in 10 days.

The two extremes of settlement showed most fever.

The Chairman of the Central Board of Health suggested the experiment of treating the entire population with quinine over a definite period. A census was taken which showed 156 homes—Population 743.

No. with recent fever	129
No. in bed	14

The first round of treatment was readily accepted. It lasted one week. Increasing refusals marked the second and third rounds as fever lessened. Refusal was chiefly due to the inability to understand why treatment should be continued after fever had ceased.

Rock Spring in St. Andrew.

Two permanent foci of breeding in the eastern section of the town have been noted:—

(1) Rock Spring shows dense breeding and has been studied since 1910 when the Old Malaria Commission started. A long record of tragedy, as the result of using the old stone building at its mouth, is handed down, culminating in death from Blackwater fever of the Misses Donaldson from Linstead, and the steady infection of residents of the Shell Oil Company since its inception. It is owned by the Military, but the Public Works Department has spent as much as £700 in ditching on it. The lower end alone shows breeding.

A clean central channel and tiled lateral drains, with the weekly application of Paris Green, is all that is necessary. Pumping from the new well, should lessen the flow and should allow of more permanent drainage.

(2) The end of the gully in the Lunatic Asylum near the 1st Medical Officer's quarters where subsoil water steadily oozes and supports dense breeding. The above foci supply anophelines to beget temporary breeding in swamp and river and end at Springfield, a newly developed settlement. Barned's Beach, Kildare Gully end, Slip Dock Gully end, Doncaster Irrigation, High Cottage Irrigation, Portland Road, Waterloo Road (broken mains), North Street (ornamented pools), King's House grounds (ornamented pools, gully ends and drains—ponds partly filled), Hope Farm (overflow and ornamental pool), Mona (ponds and overflow from irrigation in western Kingston) Foreshore (swamps and underground springs and drains in banana cultivation) are all breeding places in which increased pressure has been brought to bear on the Kingston and St. Andrew Corporation with a veiw to ameliorating them. The work has been spasmodic and gametocyte carriers have steadily increased. In Greenwich Farm, houses and lands are now being sold at a loss. In five years of increased malaria in the corporate area, the Government has spent large sums on admissions and treatment, yet there appears no way in which this money, which would reduce the incidence by three-quarters or less, can be diverted to anti-mosquito work.

The admissions to the Kingston Public Hospital for malaria was more than one-fifth of all malaria admissions from the remaining hospitals in the Island. A visitor remarked that there should be no difficulty in the control of malaria in the corporate area and succeeding years of study bear this out.

The difficulties are—(1) lack of appreciation of the value of temporary measures as a preliminary to more permanent ones, and (2) inability to combine the efforts of control and treatment in one programme.

The progress of anti-malarial work in 1935 was:—

(1) Extension of control areas in conjunction with owners and public bodies, and linking them with other areas.

(2) Increase in permanent and semi-permanent measures, drainage and ditching.

(3) (a) Increasing in quality of investigations and in facility in reporting the result of such investigations and to follow them up by continued observations.

(b) Preliminary investigations of problem by local authorities are stressed.

(4) Increasing team work with Local Boards of Health.

(5) Increased disposition by other Departments to co-operative work and in the requests for opinion in location of buildings, health of employees, etc.
(6) Increased disposition to correct faulty constructions and to consider means to avoid the making of problems.
(7) Greater concentration on studies in conjunction with local authorities to open new areas and obtain co-operation.
(8) Evolving definite policies to fit an ever changing problem.
(9) Increased help in anti-mosquito work generally.
(10) In short, Isolation is disappearing and giving rise to practical and co-operative work as by our help in the problem of anti-mosquito work generally.

Changes—

Staff.—Technician in the Central Laboratory to do all blood work from the Malaria Commission, District Medical Officers, Medical Officers of Health, etc.

Clerical.—This work is done in the central office.

Evaluation of temporary methods of control:—

(a) Increased drainage.
(b) Oiling in vicinity of homes.
(c) Paris Green in remoter parts.

The year 1936 promises an increase of control areas in quantity and quality, (i) as the result of past experience of high malaria incidence, and (ii) the increasing demand for anti-malaria work in the parishes.

£25,000 has been allocated from the Loan Programme for Swamp, Drainage and Reclamation and it is hoped that this will be the commencement of a continuous programme of such reclamation until the health menace of swamps have ceased to be a problem.

There are two outstanding factors in connection with the malaria control of the Island, namely, (1) Emphasis placed by Government on increase and extension of control measures, and (2) the Central Board of Health's insistence that property owners and Local Boards of Health should co-operate with the Malaria Commission. The continuance of these energising factors is the hope of the Officers of the Commission. The statistical tables follow:—

F. W. Aris,
Malaria Officer.

Table I.—Larvae collected from each area during 1935.

Areas.	Larval Catches.		Variety			
	Total.	Large.	A. Albimanus.	A. Vestitipennis.	A. Grabhami.	A. Crucian.
Caymanas ..	1,063	318	1,014	19	30	..
Annotto Bay ..	5,104	1,129	4,480	44	580	..
Montego Bay ..	1,199	114	724	..	469	..
Vere	777	198	743	..	34	..
Golden Grove ..	1,562	495	1,283	21	258	..
Black River ..	1,900	609	1,839	12	28	21
Falmouth ..	1,619	792	766	56	797	..
Sav.-la-Mar ..	1,377	532	1,269	27	79	2
Little London ..	1,270	441	1,232	15	23	..

Table Ia.—Larvae collected from areas opened during the second half of 1935.

Areas.	Larval Catches.		Variety.			
	Total.	Large.	A. Albimanus.	A. Vestitipennis.	A Grabhami.	A. Crucian.
Annotto Bay (outside)	2,960	1,133	2,777	..	183	..
Bernard Lodge ..	2,063	1,037	1,907	19	137	..
Serge Island ..	2,511	1,325	1,894	..	607	..
Golden Grove (outside) ..	1,481	567	1,291	6	176	..

TABLE II.—Collection of Adult Mosquitoes from each area during 1935.

Areas.	Larval Catches.		Variety.			
	Total.	Large.	A. Albimanus.	A. Vestitipennis.	A. Grabhami.	A. Crucian.
Caymanas ..	102	290	262	16	11	1
Annotto Bay ..	134	1,644	1,325	231	87	..
Montego Bay ..	207	261	152	4	95	..
Vere ..	94	82	75	..	7	..
Golden Grove ..	97	421	287	37	97	..
Black River ..	97	917	1,082	38	55	1,782
Falmouth ..	111	1,675	1,158	224	293	..
Sav.-la-Mar ..	137	542	437	63	19	23
Little London ..	147	629	466	144	15	4

TABLE IIA.—Collection of Adult Mosquitoes from areas opened during the second half of the year 1935.

Areas.	Adult Catches.		Variety caught.			
	No. of Catches.	No. caught.	A. Albimanus.	A. Vestitipennis.	A. Grabhami.	A. Crucian.
Annotto Bay (outside) ..	52	516	483	5	28	..
Bernard Lodge ..	40	408	316	5	107	..
Serge Island ..	33	201	138	..	63	..
Golden Grove (outside) ..	49	274	197	37	40	..

TABLE III.—Results of Blood Examinations for all areas during 1935.

Areas.	Weekly Fever Incidence.					
	No. of Smears	No. Positive.	Parasite found.			
			P. Vivax.	P. Falciparum	P. Malariae.	Mixed.
Caymanas ..	33	7	1	6	..	..
Annotto Bay ..	132	46	7	39	..	..
Montego Bay ..	124	19	2	17	..	..
Vere ..	172	66	11	54	1	..
Golden Grove ..	42	18	3	15	..	..
Black River ..	126	33	2	31	..	
Falmouth ..	43	10	1	9	..	..
Sav.-la-Mar ..	23	6	..	6	..	..
L ttle London ..	22	11	..	11	..	..

TABLE IIIa.—Results of Blood Examinations for areas opened during the second half of the year 1935

Areas.	Weekly Fever Incidence.					
	No. of Smears taken.	No. Positive.	Parasite found.			
			P. Vivax.	P. Falciparum.	P. Malariae.	Mixed.
Annotto Bay (outside) ..	105	45	4	41	..	..
Bernard Lodge ..	64	22	..	22	..	..
Serge Island ..	28	3	..	3	..	..
Moneague ..	15	12	2	10	..	..
Golden Grove (outside) ..	10	2	..	2	..	..

TABLE IV.—Results of Examination for Enlarged Spleens—Annual Resurvey, November and December, 1935.

Areas.	No. Examined.	No. Enlarged.	Per Cent. Enlarged.	Spleen Size encountered.				
				Palpable.	1	2	3	4
Caymanas ..	50	5	10	1	0	1	2	1
Annotto Bay ..	100	24	24	10	6	6	2	0
Montego Bay ..	200	8	4	6	2	0	0	0
Vere ..	100	16	16	7	6	3	0	0
Golden Grove ..	100	26	26	11	6	5	3	1
Black River ..	50	10	20	7	0	2	1	0
Falmouth ..	100	9	9	4	4	1	0	0
Sav.-la-Mar ..	150	15	10	14	1	0	0	0
Little London ..	100	18	18	10	6	1	1	0

V.—REPORT OF UNIT No. 1 OF THE JAMAICA HOOKWORM COMMISSION FOR THE YEAR, 1935.

SECTION 1.—THE YEAR IN BRIEF.

The unit continued to work in the Cambridge area which was completed in June. Pioneer work was begun in the Montego Bay area in April and the office moved to Montego Bay on May 1.

The examinations and treatments carried out for the year were as follows:—

	Cambridge Area.	Montego Bay Area.	Total.
Census	1,444	8,690	10,134
No. of first examinations ..	1,444	8,134	9,578
No. found infected	1,034	2,486	3,560
No. of first treatments ..	1,374	1737	3,111
No. total treatments	3,541	3,782	7,323
No. re-examinations	1,876	1,855	3,731
No. cured	1,416	1,398	2,814

In addition to the above field work 358 persons were examined on application in office and 61 treatments were given to 28 patients with the necessary re-examinations.

The Unit also provided three field officers for the greater part of the year to assist the Parochial Staff in improving sanitation. These officers had 670 new latrines constructed.

Educational measures were continued by house to house talks and distribution of posters, leaflets, and bulletins, and 19 lectures were given to an estimated audience of 4,000.

SECTION 2.—DESCRIPTION OF AREAS.

The Cambridge Area.—This has been described in the Annual Report for 1934. The area was completed in June this year and the final figures for treatment work are as follows for 32 districts:—

Census.	Number Examined.	Number Infected.	Number Treated.	Number Cured.
12,717	12,707	9,818 Or 77.2%.	8,935	8,358

The conditions of latrines on first and final inspections are as follows for the 32 districts:—

	First Classification.			Final Classification.		
No. of Homes.	D.	E.	F.	D.	E.	F.
2,663	1,762	215	292	1,804	201	263

The Montego Bay Area.—The Montego Bay Area forms the North-western portion of the parish of St. James. It is wide but short and comprises approximately 40 square miles. Its southern section in somewhat hilly and rugged country, whilst the northern part is sea-coast and plains with swamps in certain areas.

The Area is bounded on the north and west by the sea and by Hanover, on the south by the Cambridge Area and on the east by the Adelphi Area.

The soil is sandy loam on the plains and light clay mixed with rock and marl in the country part.

The Area is divided into 20 districts. 8 of these comprise the town of Montego Bay and the remaining 12 are situated in the country parts.

The figures for the Area to date are as follows:—

Nos.	Districts.	Census.	Examined	Infected.	Treated.	Cured.	Under Treatment.
1-5	(closed)	5,121	4,843	1,430	1,225	1,120	32
6.	Montego Bay F. ..	1,019	959	233	200	154	43
7.	Montego Bay G. ..	854	815	212	175	124	51
8.	Montego Bay H ..	1,087	915	235	137	..	137
9.	Belmont	317	313	186	..	..	..
10.	Tower Hill ..	292	289	190	..	..	..
	Totals ..	8,690	8,134	2,486	1,737	1,398	263

The first and final inspections of latrines in this Area are as follows:—

No.	District.	First Classification.				Last Classification.		
		No. of Homes.	D.	E.	F.	D.	E.	F.
1.	Montego Bay A	180	111	7	1	112	6	1
2.	Montego Bay B	139	38	32	1	52	18	1
3.	Montego Bay C.	157	118	8	..	118	8	..
4.	Montego Bay D. ..	182	74	3	..	76	1	..
5.	Montego Bay E.	86	65	17	2	78	5	1
*6.	Montego Bay F.	170	96	5	13	..	..	..
*7.	Montego Bay G. ..	172	124	..	1	..	..	..
*8.	Montego Bay H. ..	171	**159	27	7	..	..	..
*9.	Belmont	60	46	8	..	..	..	..
*10.	Tower Hill	60	53	3	1	..	..	..
	Total*	1,377	884	110	26	436	38	3

* With regard to these districts, no figures appear under last classification as they are still under operation.

** Many of these homes are provided with more than one latrine.

Sanitation.

The Sanitation Unit had almost completed its work in the Cambridge Area before treatment was commenced by us there. This was different in the Montego Bay Area; several of the country districts had only just begun construction of latrines in the early part of the year. Even in Montego Bay which was the most advanced, many of the latrines were insanitary and a few homes were not provided with any sanitary convenience. Again, certain tenement yards which housed approximately 40 to 50 people had only one latrine with sometimes one, sometimes two, seats for the accommodation of all these people. These conditions were reported to the Medical Officer of Health and lists supplied. They have been receiving attention ever since and some amount of improvement has been noted.

With regard to the country districts, three of our Field Officers were loaned to the Parochial Board to assist with the construction of latrines in the unsanitated districts, and at present many of the districts in which they have worked are nearing completion as far as erection of latrines is concerned.

Latrines in the Cambridge Area were all of the pit type. Pit latrines of a substantial nature have been constructed in Montego Bay and the remaining portion of the Montego Bay Area.

32 new latrines were constructed and 69 insanitary ones made sanitary in the Cambridge Area during the operations of our Unit. In the districts reached by our Treatment Campaign in the Montego Bay Area one new latrine was built and 29 insanitary ones made sanitary and our Field Officers who were engaged on construction work only in this area succeeded in getting 670 latrines constructed and 41 insanitary ones made insanitary.

The water supply of the Cambridge Area is abundant, being obtained from rivers, springs, etc. Many of these sources are, however, unprotected and liable to pollution. The country districts of the Montego Bay Area are less fortunate in their sources of supply. Tanks, springs, and ponds form the main sources, and these are at times liable to gross pollution. Difficulty is experienced in obtaining water during the dry season when tanks and ponds go dry. The rainfall was fairly plentiful right through the present year approaching flood proportions in October. The storm of October wrought havoc to banana cultivation, in the parish.

Educational Campaign and Co-operation.

The co-operation of the people of the Cambridge Area left nothing to be desired. There was a general eagerness on the part of the people for treatment and in consequence little difficulty was met with.

The Montego Bay Area proved entirely different in this respect. This remark applies to the town of Montego Bay where it was most difficult to win co-operation, an approximate 200 or so who did not co-operate were, with very few exceptions, really impossible to deal with.

Credit is due to some of the influential members of the community who showed marked interest in the work and thus set a good example which helped the Unit considerably. On account of a full week of stormy weather, Health Week was almost completely washed out, it being possible to hold only a few lectures.

The educational programme of the Commission in Public Health matters was continued this year. Posters, leaflets, and bulletins have been distributed by our Field Officers. House-to-house lectures, both during Pioneer work and subsequently, have been carried out. A few public and school lectures have been given. During the year 19 lectures were given to an estimated audience of 4,040 people.

Section 3.—Treatment.

The intensive method of treatment was used as heretofore. The number censused in each district was confined to 300–400 in the Cambridge Area. In the Montego Bay Area, due to a lower percentage of infection and the proximity of homes, census was increased to 900–1,000 per district.

Along with treatment and census work the men have included Health Education. Pioneer work helped considerably in the proper grouping of districts and the preparation of the people for Hookworm Treatment.

The drugs used were Chenopodium, Thymol, Jalap, Magnesium Sulphate and Ol. ricini; continuing in similar manner to last year no Jalap was added to the capsule containing Chenopodium. The average percentage of hookworm infection in the Cambridge Area was found to be 77.2% Ascaris to be 30.2 and Tricho-Cephalus 50.5.

In the Montego Bay Area it was as follows:—Hookworms, 30.5%, Ascaris 13.2% and Tricho-Cephalus 36.8%.

The following tables show the percentage of cures after each examination in both Areas;—

Cambridge Area.

Examination.	No. Examined.	No. Cured.	Percentage.
2nd Examination ..	8,897	5,927	66.6
3rd " ..	2,891	1,971	68.1
4th " ..	860	516	60.0
5th " ..	208	114	54.8
6th " ..	16	10	62.5

Montego Bay Area.

Examination.	No. Examined.	No. Cured.	Percentage.
2nd Examination ..	1,179	980	83.1
3rd " ..	162	119	73.4
4th " ..	28	19	67.8
5th " ..	5	2	40.0

These figures are for the closed districts only.

As has been the custom, treatment was generally discontinued after five treatments. 276 sixth and 43 seventh treatments were given, however, in the Cambridge Area and 6 sixth treatments in the Montego Bay Area.

The residual infection in the Cambridge Area was not higher than usual and was divided as follows:—Positive not treated 884, discontinued after treatment 339, left under treatment 58; Total 1,281 or 13.0% of the infected.

The residual infection in the closed districts of the Montego Bay Area was higher, due to the fact that the people move from place to place in the tenement section of the town, and locating them was impossible in some cases, also to the fact that a higher percentage than usual refused to take treatment, figures were divided as follows:—Positive not treated 205, discontinued after treatment 73, left under treatment 32, total 310 or 21.6% of the infected.

There were no fatalities following treatment in either Area.

Work of the Nurses.—There has been a considerable number of changes in the Field Staff during the year and at times a shortage of Field Officers. In January, Nurses Gabay, Gentles and Gray were loaned to the Parochial Board of St. James to accomplish latrine construction in preparation for our Treatment Campaign. Nurses Gentles and Gray continued in this work for 10 months while Nurse Gabay left after 5 months' service.

During February Nurse Hyman was loaned to the Board for emergency Anti-malarial Control work. He resumed work with the Commission on April 1st, and was assigned Pioneer Work in the Montego Bay Area. He continued this work till June when he started regular treatment work once more. In November he again did pioneer work which he continued until the close of the year.

Nurse Ramsay also carried out pioneer work in the Montego Bay Area for a period of 10 weeks and Nurse Gray for 7 weeks.

Nurse Richards was dismissed at the end of April owing to re-arrangement of the Staff. His place was not filled. The same reason applies to Mr. R. C. Gray's transfer from our Office Staff to the Yaws Commission; his place was taken by Mr. W. N. Ewart who was assigned Field duties.

Nurse N. S. Gabay was appointed Sanitary Inspector in Portland on 1st July, his place was not filled.

On the 1st November Nurses Patterson and Gentles obtained positions with the Parochial Board of St. James as Sanitary Inspectors thus relinquishing their positions on our Field Staff; their places were filled by Messrs. H. H. Marshall and E. J. Ricketts.

Incidence of Hookworm Infestation.—Due to heavy rainfall, clayey soil, extensive banana cultivation and former poor sanitation, the hookworm infection of the Cambridge Area was very high. It varied from 58.2% in District No. 31 Anchovy to 87.3% in Districts Nos. 3 and 4 Cold Spring and Sweet Water, with an average of 77.2%.

In the Montego Bay Area the incidence of hookworm infection was low and varied from 22.9% in district No. 3 Montego Bay C. to 65.7% in district No. 10 Tower Hill.

The former is a section of the town of Montego Bay, whilst the latter is a country district. Census work and collection of tins has not been completed in this district, but the examinations that have already been carried out tend to show that infection will be high.

Worm counts by the Stoll method are made on a small proportion of the specimens from each district. The results were as follows:—

	No. egg counted.	Lowest No. worms found.	Highest No. worms found.	Average No. of worms per infected person.
1. Lapland	10	2	136	31.8
2. Brother's Retreat ..	10	2	45.4	27.8
3. Cold Spring	9	2	268	98.8
4. Sweet Water	10	13.6	409	176.2
5. Niagara	10	18.1	186.2	92.6
6. Stonehenge	10	2	122.6	33.7
7. Cambridge A	10	4.5	800	167.1
8. Bird Track	10	2	213.6	36.4
9. Cathkin	10	9	740	142.5
10. Cambridge B. ..	10	9	209	54.
11. Belfont	10	2	40.9	20.6
12. Ninety Five	10	9	136.1	46.2
13. Shortwood	7	2	404.4	146.9
14. Mt. Horeb	10	2	127.2	41.9
15. Cambridge C. ..	9	2	149.9	33
16. Catadupa	8	4	36.3	29.9
17. Cambridge D. ..	8	9	104.5	38.1
18. Plum	10	9	268	59.9
19. Richmond Hill ..	10	2	113.6	34.6
20. Bickersteth	5	4.5	163.6	59.2
21. Mt. Carey	10	9	313.6	68.5
22. Bruce Hall	10	2	214.5	53.8
23. Bullman	6	2	422.6	103.4
24. Seven Rivers	10	13.6	1,118	300.8
25. Montpelier	10	13.6	150	34.5
26. Carey Village	9	2	127.2	45.6
27. Lethe	8	18.1	200	60.7
28. Windsor Castle ..	10	4.5	54.4	25.4
29. Mafoota	7	27.2	563.5	160.9
30. Elysium	10	4	81.8	27.6
31. Anchovy	10	4.5	40.9	23.5
32. Roehampton	10	4.5	459	80.1

MONTEGO BAY AREA.

No. District.	No. egg counted.	Lowest No. worms found.	Highest No. of worms found.	Average No. of worms per infected person.
1. Montego Bay A. ..	10	2	100	32.1
2. Montego Bay B. ..	7	2	45.4	26.2
3. Montego Bay C. ..	6	2	72.7	17.6
4. Montego Bay D. ..	10	2	131.8	28
5. Montego Bay E. ..	6	2	81.8	43.4
6. Montego Bay F. ..	7	13.6	45.4	31.7
7. Montego Bay G. ..	6	2	36.3	19.8

The following tables show the percentage of infection relative to (a) Age Groups and (b*) Sex, in both Areas:—

CAMBRIDGE AREA.

Age Groups.	Examined.	Infected.	Percentage.
0 – 5yrs. ..	1,819	790	43.4
6 – 10 " ..	2,006	1,618	80.6
11 – 20 " ..	2,664	2,335	87.6
21 – 30 " ..	2,582	2,222	86.0
31 – 40 " ..	1,483	1,168	78.7
41 – 50 " ..	1,016	810	79.7
51 – 60 " ..	658	503	76.4
Over 60 years ..	479	373	77.8
Totals ..	12,707	9,819	77.2

MONTEGO BAY AREA.

Age Groups.	Examined.	Infected.	Percentage.
0 – 5 yrs. ..	588	33	5.6
6 – 10 " ..	528	83	15.7
11 – 20 " ..	952	387	40.6
21 – 30 " ..	1,509	635	42.0
31 – 40 " ..	650	159	24.4
41 – 50 " ..	337	86	25.5
51 – 60 " ..	172	35	20.3
Over 60 years ..	107	12	11.2
Totals ..	4,843	1,430	29.5

N.B.—In Montego Bay Area figures are given for the closed districts only.

CAMBRIDGE AREA.

Sex.	Examined.	Infected.	Percentage.
Male	6,185	5,002	80.8
Female ..	6,522	4,817	73.8
Totals ..	12,707	9,819	77.2

MONTEGO BAY AREA.

Sex.	Examined.	Infected.	Percentage.
Male	1,809	582	32.2
Female ..	3,034	848	27.9
Totals ..	4,843	1,430	29.5

N.B.—The figures for the Montego Bay Area are for the closed districts only.

Incidence of Other Worms.—A note is made of other sworms found during examinations, though no special care is taken to look for them.

In the Montego Bay Area 13.2% of 8,690 specimens shewed ascaris, and 36.8% tricho-cephalus. Strongyloides occur occasionally. In the Cambridge Area 30.2% of 12,707 specimens shewed ascaris, 50.8% tricho-cephalus, a few strongyloides, and one tapeworm.

SECTION 4.

STATISTICS OF THE CAMBRIDGE AREA.

1. Census		12,717
a. Number removing before examination ..	8	
b. Number refusing examination	2	
2. Number available for examination		12,707 or 99.9%
3. Number examined		12,707 or 100%
4. Number found infected		9,819 or 77.2%
a. Number not treated for medical reasons ..	821	
b. Number removing before receiving treatment ..	59	
c. Number dying before receiving treatment ..	2	
d. Number refusing to take treatment	1	
5. Number available for treatment		8,936 or 91.0%
6. Number treated		8,935 or 99.9%
a. Number discontinued for medical reasons ..	49	
b. Number removing before being cured ..	59	
c. Number dying before being cured	2	
d. Number discontinuing after 5 or more treatments	229	
7. Number possible to cure		8,596 or 96.2%
8. Number cured		8,538 or 99.3%

STATISTICS OF MONTEGO BAY AREA.
(Closed Districts 1-5).

1. Census		5,121
a. Number removing before examination ..	139	
b. Number dying before examination	3	
c. Number refusing examination	124	
d. Number not located for examination ..	12	

2. Number available for examination		4,843 or 94.5%
3. Number examined		4,843 or 100%
4. Number found infected		1,430 or 29.5%
a. Number not treated for medical reasons	83	
b. Number removing before receiving treatment	90	
c. Number dying before receiving treatment	2	
d. Number not located for treatment	14	
e. Number refusing to take treatment	16	
5. Number available for treatment		1,225 or 85.6%
6. Number treated		1,225 or 100%
a. Number discontinued for medical reasons	19	
b. Number removing before being cured	38	
c. Number refusing further treatment	6	
d. Number dying before being cured	1	
e. Number discontinuing after 5 or more treatments	9	
7. Number possible to cure		1,152 or 94.0%
8. Number cured		1,120 or 97.2%

STATISTICS OF MONTEGO BAY AREA.
(Districts in progress) 6-10.

1. Census		3,569
a. Number removing before examination	8	
b. Number refusing examination	20	
2. Number available for examination		3,541 or 99.2%
3. Number examined		3,291 or 92.9%
4. Number found infected		1,056 or 32.0%
a. Number not treated for medical reasons	33	
b. Number removing before receiving treatment	14	
c. Number not located for treatment	1	
5. Number available for treatment		1,008 or 95.4%
6. Number treated		512 or 50.7%
a. Number removing before being cured	3	
7. Number possible to cure		509 or 99.4%
8. Number cured		278 or 54.6%

SECTION V.

Visitors.—Visitors to the Commission during the year include Dr. J. M. Hall, S.S.M.O., Dr. K. Leigh Evans, Government Bacteriologist, Mr. H. W. Davis, Overseer of Works, Ven. Archdeacon E. S. Harrison and several other prominent gentlemen.

Staff.—Dr. T. B. Sinclair was in charge of the Unit until 4th May when he left to take up duties as Acting Medical Officer for St. Mary. Dr F. E. Lowe, then Medical Officer of Health for St. James, supervised the work of the Unit until 30th June when he resigned his position as Medical Officer of Health. Since then, Dr. W. J. Branday, Medical Officer of Health for St. James, has been in charge.

Present Personnel.

Dr. W. J. Branday	Medical Director
Mr. A. Lindo	Chief Clerk
Mr. O. A. Harris	Asst. Clerk
Mr. R. S. Heslop	Chief Microscopist
Mr. O. L. Levy	Asst. Microscopist
Mr. F. J. Fletcher	Field Officer
Mr. G. V. Ramsay	do.
Mr. W. N. Ewart	do.
Mr. H. M. Gray	do.
Mr. R. J. Hyman	do.
Mr. H. H. Marshall	do.
Mr. E. J. Ricketts	do.

W. J. BRANDAY,
Medical Director and
Medical Officer of Health, St. James.

REPORT OF UNIT No. 2 OF THE JAMAICA HOOKWORM COMMISSION FOR THE YEAR 1935.

SECTION I.—THE YEAR IN BRIEF.

During 1935, Unit No. 2 conducted treatment, sanitation and health campaigns in the Riversdale or East St. Thomas-Ye-Vale Division of St. Catherine. For purposes of the campaign, the Area has been divided into 26 districts in 15 of which treatment activities have been concluded. Work is in progress in 4 districts, while 2 are being surveyed and pioneered preparatory to treatment.

The total census taken during the year was 10,537; of these 10,441 or 99.1% have submitted stools for examination. 8,341 or 79.8% have been found to harbour hookworms; 7,518 or 90% have received treatment and 6,137 or 81.6% have been cured. Details of those treated and not cured or not treated are given in Section III. A total of 21,223 treatments have been administered in these districts.

In the Laboratory, 21,287 microscopical examinations were conducted, including the examination of 506 'private' cases. It is impracticable to pursue to a finality routine treatment of a large majority of the private cases, since the Unit has no control of these individuals who include itinerants to the district or interested persons in adjacent parishes.

Sanitation.

Of 2,689 premises visited during November and December of 1934, only 38% had suitable latrines. Because of this, it was deemed necessary to delay the treatment in favour of an intensive latrine construction programme.

The response of householders, generally, was excellent, so much so that treatment was begun early in January in 5 districts which had then become 85% latrine sanitated. By February, the sanitation of several other districts was brought up to a satisfactory standard and 2 more nurses were assigned treatment centres. One officer was retained on the reconstruction work.

Up to date, 15 completed districts with 1,702 homes are 91% sanitated.

Education in Health.

The education of the people in Health matters underlies the work of the Commission as its major objective. The usual media for awakening and maintaining interest in prevention of soil pollution and control of communicable diseases were employed. Pamphlets, charts, albums, posters, lectures, demonstrations—all played their part, and, too, the monthly Health Bulletins were distributed in the districts to the reading population.

In addition, an intensive campaign was conducted by the Unit in educating the people in the control of Tuberculosis during the entire period of the T.B. Memorial Fund effort. The Unit acted as a Publicity Committee in this work, each staff member assisting to popularise the cause.

14 lantern lectures were given during the year to an estimated total attendance of 3,600.

Health Week celebrations were observed during October. This year, as in previous years, the weather was inclement and interfered considerably with the programme of lectures and school visits arranged by the Unit. Field nurses were able to visit schools in the districts in which they were engaged, but only 1 public lecture could be conducted.

Routine.

Field, Laboratory and Office.—The "Intensive Methods' of campaign and the Group System of treatment are still in adoption.

The treatment consists of the administration of Oil of Chenopodium and Thymol given alternately after an interval of 5 days, preceded by a preliminary purge of Pulv. Jalap Co. with Charcoal, and followed by Magnesium Sulphate. Ol. Ricini with Chenopodium is administered to babies between the ages of 1 and 4. Re-examinations are done 7 days after routine treatment, and further treatment given infected cases. After 5 treatments, positive cases are supplied medicine only on demand. The system of tendering certificates to negative cases has been discontinued.

In the Laboratory, examinations are done by the Willis Flotation Method, and egg-counts by the Stoll technique.

Section II.

The Riversdale Area has an area of about 43 square miles, including a small section of the Guy's Hill Medical division.

Housing and Overcrowding.—The population under control show an average of 5 per home, but housing conditions leave much to be desired. In the hill districts floorless huts, with dark rooms—there being in the majority of cases a total absence of means of ventilation—are the usual dwellings found. In other parts, a slight improvement on this type is seen in the wattle and daub structures.

In the several small two-room dwellings there are to be found 12 occupants, and in instances as many as 19 and 20.

The Water Supply throughout the Area is adequate but unsafe. Rivers and springs form the chief source, but there is a great deal of pollution of these supplies. There are 2 springs adequately protected in the district of Phillipsburgh. Very little results can be obtained from a 'Boil your drinking water' campaign.

Programme of Work.

The Unit concentrated on completing a sufficient number of districts so as to be able to effect a start on the treatment work. On January 4th, three districts were considered satisfactorily sanitated—between 85% and 95% of homes being sanitated. Census was started in the districts of Ham Walk and Rio Magno, Hampshire and Cedar Valley, and extended to Pear Tree Grove and Riversdale on January 18th. By February 7th, of the 8 nurses—7 were engaged in treatment, while the remaining officer was detailed to do construction and maintenance in the Berwick-Hyde-West Prospect Districts.

In order to keep continuous this work of latrine construction, arrangements were made for the suspension of treatment on one day in each week to enable all nurses to visit districts adjacent the one in which they were engaged. This had the effect of sustaining the interest of householders, and of preventing treatment from forging ahead of sanitation.

Treatment has been completed in 15 districts: 4 districts are in progress.

The following Table shows the figures for the Area:—

Table No. 1.

	Census.	Examined.	Infected.	Percentage.	Treated.	Cured.	Percentage.
Totals	10,537	10,441	8,341	79.8	7,518	6,137	81.6

Incidence Rate and Treatment.

Type of cultivation, soil, moisture, adequate rainfall and, too, the recent installation of latrines pointed to a high degree of infection throughout the Area. The rate varied slightly, 11 districts being over 80%, the highest being found in the hilly and wet district of Seafield (87.9%), 7 districts being over 70%, and 1 district—Troja—being 68.5%. The average was 79.8%.

In the completed districts with a census of 7,725, there were found infected 5,938 or 77.6%; 5,419 of these received treatment and 5,212 or 96.1% were cured. This high rate of reduction in the infected populaton was effected by the administration of 15,761 treatments or an average of 3 per cure.

In the entire controlled Area, 7,518 patients received a total of 21,223 treatments.

The following Table shows the rate of the reduction of the infected population in the completed districts after each routine medication.

Table No. 2.

	Cured after:— 2 Treatments.	Percentage.	4 Treatments.	Percentage.	5 Treatments.	Percentage.	6 Treatments.	Percentage.
Totals ..	3,275	60.6	4,660	86.2	5,110	94.6	5,212	96.1

Infestation Rate.

The degree of infestation was obtained by the use of the Stoll Formula after the egg counts were estimated. It was not found possible to carry out the technique in all districts, nor, in the districts done was the laboratory able to secure a sufficiently large number of suitable stools.

Table No. 3.—Table of Egg Counts.

District No.	Infected.	Percentage.	No. Egg Counts.	Lowest No. worms.	Highest No. worms.	Average No. worms.
1	393	81.1	11	18	1,300	321.8
2	348	83.5	4	18	118	58.9
7	345	73.0	2	4.4	27.2	15.8
4	316	76.3	19	4.4	1,031.6	147.7
5	559	74.3	6	4.4	245.2	103.7
6	490	68.5	15	13.6	100	14.4
15	464	81.1	2	86.2	227.2	156.7
16	524	86.4	5	13.6	245.4	80.8
17	417	87.9	4	4.4	227.2	64.6
19	716	83.7	8	36	1,254.4	402.3

Clinically the vast majority of cases were slight, the signs of ill-health and lowered efficiency being accentuated by malnutrition, other devitalising influences and the inflictions of poverty.

Table No. 4.—Distribution of Population and Infection by Age Groups.

Age Group.	Population.	% Population.	Infected.	% infected per Age Group.	% growing Population.	% infected Population.
0- 5	961	12.5	419	42.4	..	..
6-10	1,199	15.7	986	82.2	28.2	65.0
11-20	1,729	22.6	1,554	89.8	50.6	76.0
21-30	1,388	18.1	1,151	82.9	68.9	77.8
31-40	950	12.4	749	78.8	81.1	78.0
41-50	674	8.8	509	74.0	90.1	77.7
51-60	459	6.0	346	73.2	96.1	77.6
Over 60	293	3.9	224	76.4	100.0	77.6

Comparing the distribution of the population with the rate of infection, it is seen that 42.4% of infants, who represent 12.5% of the population, have come into early contact with hookworm larvae. This percentage grows as the ability to, and range of, travel of the individual increases. The largest section of the population lies in the group 11-20, representing of itself 22.6% of the entire population, and it is here that the peak of infection is reached. A steady fall in the individual group infection is noted after, but the general rate throughout the population remains almost stationary after the age of 20 is attained. 50% of the population lies within the group 0-20, and by the time the age of 50 is reached 90% of the population is involved.

Treatment, therefore, and relief from hookworm disease is mainly directed towards the child and young adult, the period of life during which there is laid and built upon a foundation for useful, healthy and ideal citizenship. A successful campaign renders the child or future citizen better able to take advantage of its opportunities for obtaining education, and the adult or present citizen capable of doing a greater amount of effective work.

Other Helminths.

52.2% of the population were found to harbour Trichiuris Trichiura, while 35.1% had Ascaris. There were only 33 and 7 cases of Strongyloides and Oxyuris respectively.

Among the persons negative to Hookworms, 1,048 were found positive to the other parasites.

Sanitation.

The progress made during the year has been very satisfactory. The Unit worked hard to establish standard types of latrines. In January the Parochial Board appointed a trained and competent Sanitary Inspector for the Riversdale Area, and in April an additional Inspector was sent to the Glengoffe Area.

A summary of the pioneers' work showed only 38% premises latrines sanitated, and the Unit had to provide officers to assist in preparing the Area for treatment.

The following Table shows the classification in completed districts at the start and close of the treatment campaign.

Table No. 5.

		First Classification.			Last Classification.		
Census.	No. of Homes.	D.	E.	F.	D.	E.	F.
Totals 7,725	1,701	1,363	95	131	1,454	39	96

In classifying latrines "D" indicates a sanitary latrine of standard type, "E" an insanitary latrine and "F" that the home is not provided with a latrine of any type.

Other Diseases.

Yaws.—This disease was found to be moderately distributed in the districts of Cedar Valley, Redwood, Harewood, Sandy Gut, Crawle, Williamsfield, Hampshire, Pear Tree Grove, Top Hill and Seafield and Lucky Valley; and prevalent in Gobay and Darling Spring.

The officers of the Unit notified cases as soon as recognised, and took the opportunity of studying the methods adopted by the Yaws Commission Staff in their census and follow-up duties.

The operation of two Health Units at the same time in the Area had the effect of sustaining the interest of the people in the work of disease control, and the combined remedial effects of the treatments were much in evidence.

One officer of the Unit was engaged in Yaws control and follow-up in the Linstead Area for 7 months of the year.

Dysentery.—During the month of April, 8 cases of what appeared to be Dysentery in mild form were investigated in Riversdale and the Medical Officer of Health was notified. All the cases responded to treatment, the illness lasting about 1 week.

Co-operation.

The Unit assisted the Parish Health Unit in its programme of work wherever possible—Yaws and T.B. notification, Malaria investigation, meat inspection. Such assistance gave training to the men fitting them for permanent positions in Parochial Health Units.

The general population showed interest in the work; 99% availed themselves of examination, and 99% of those available for treatment took treatment. And, again, 90% of householders complied with the sanitary requirements.

The Unit received much support from the teachers, ministers and influential laymen of the Area whose example the masses were quick to follow.

Section III.—Statistics of Riversdale Area.
Closed Districts 1-15. 1935.

1. Census		7,725
a. Number of people removing before examination ..	31	
b. Number of people refusing examination ..	35	
c. Number of people not located for examination ..	4	
d. Number of people dying before examination ..	2	
2. Corrected Census		7,653 or 99.0%
3. Number of people examined		7,653 or 100%
4. Number of people found infected		5,938 or 77.6%
a. Number of people not treated for medical reasons	372	
b. Number of people removing before treatment ..	112	
c. Number of people dying before treatment ..	10	
d. Number of people refusing treatment ..	6	
e. Number of people not located for treatment ..	2	
5. Number of people available for treatment		5,436 or 91.5%
6. Number of people treated		5,419 or 99.7%
Number of people receiving 1 treatment ..	5,419	
Number of people receiving 2 treatments ..	5,387	
Number of people receiving 3 treatments ..	2,063	

Number of people receiving 4 treatments	..	2,046	
Number of people receiving 5 treatments	..	651	
Number of people receiving 6 treatments	..	150	
Number of people receiving 7 treatments	..	35	
Number of people receiving 8 treatments	..	9	
Number of people receiving 9 treatments	..	1—15,761	
a. Number of people discontinuing for medical reasons		24	
b. Number of people removing before being cured	..	20	
c. Number of people refusing further treatment	..	11	
d. Number of people dying before being cured	..	2	
e. Number of people discontinuing after 5 treatments		85	
7. Number of people possible to cure	.. ..		5,277 or 97.4%
8. Number of people cured	.. .. ..		5,212 or 98.8%

STATISTICS OF RIVERSDALE AREA.
Districts in progress 16-19 1935.

1. Census	.. ..		2,812
a. Number of people dying before examination		1	
2. Corrected Census	.. ..		2,811 or 99.9%
3. Number of people examined	.. .. ..		2,788 or 99.2%
4. Number of people infected	.. .. ..		2,403 or 86.2%
a. Number of people not treated for medical reasons		122	
b. Number of people removing before treatment	..	24	
c. Number of people dying before treatment	..	1	
5. Number of people available for treatment	.. ..		2,256 or 93.8%
6. Number of people treated	.. .. ..		2,099 or 93.8%
Number of people receiving 1 treatment	..	2,099	
Number of people receiving 2 treatments	..	1,960	
Number of people receiving 3 treatments	..	655	
Number of people receiving 4 treatments	..	553	
Number of people receiving 5 treatments	..	150	
Number of people receiving 6 treatments	..	41	
Number of people receiving 7 treatments	..	4—5,462	
a. Number of people discontinuing for medical reasons		5	
b. Number of people removing before being cured	..	5	
c. Number of people refusing further treatment	..	3	
d. Number of people dying before being cured	..	1	
7. Number of people possible to cure	.. ..		2,085 or 99.3%
8. Number of people cured	.. .. ..		925 or 44.3%

GEO. S. ESCOFFERY,
Medical Director and Medical Officer of Health, St. Catherine.

VII.—ANNUAL REPORT OF "SPECIAL TUBERCULOSIS STUDIES" IN JAMAICA FOR THE YEAR 1935.

By DR. C. W. WELLS.

This Report concerned with activities conducted in Jamaica during the year 1935 falls into several different categories; (1) Special Tuberculosis Studies which have been subsidised by the International Health Division of the Rockefeller Foundation. (2) Special activities assosiated with the arrangement whereby a member of the International Health Division staff has acted as Advisory Consultant in tuberculosis to the Government of Jamaica.

1. SPECIAL TUBERCULOSIS STUDIES.

Special tuberculosis studies conducted by a member of the International Health Division staff was inaugurated in Jamaica in December, 1930, and have comprised installation of the tuberculosis X-ray diagnostic service associated with the Kingston Tuberculosis Dispensary. This enterprise was formally turned over to the Government on April 1, 1934. In July, 1931, the tuberculosis survey was begun in Kingston. The field work of this survey was completed in February, 1934. The study of autopsy material obtained from cases of pulmonary tuberculosis was early started and continued through 1935. During the current year, a total of 34 autopsies were performed on patients who died from tuberculosis in Kingston.

Although the tuberculosis survey in Kingston terminated during the preceding year, a large mass of information had been accumulated. The analysis of this data has occupied much of 1935. The preliminary draft of the report of the tuberculosis survey findings in Kingston has been completed and forwarded to New York. Suggestions are being awaited before putting the Report into its final form for publication.

Utilising certain data from the Kingston Tuberculosis Survey Report, three papers have been prepared for publication and submitted to the New York Office; these are:

"A Study of Tuberculosis Infection in Kingston, Jamaica, as Demonstrated by Results of the Tuberculin Test," by Dr. C. W. Wells and Dr. H. H. Smith.

"A Study of Tuberculous Infection in Kingston, Jamaica, as Demonstrated by X-Ray Examinations," by Dr. C. W. Wells and Dr. H. H. Smith.

"The Intensity of Tuberculin Reaction and Frequency of Demonstrable Pulmonary Tuberculous Lesions," by Dr. C. W. Wells and Dr. H. H. Smith.

A preliminary draft of the fourth paper for publication, dealing with the subject of case-finding methods in tuberculosis has been prepared.

An investigation and a study has been started covering 1,291 cases of manifest tuberculosis X-rayed at the Kingston dispensary between January 20, 1931 and April 1, 1934. While this analysis is in its early stages, sufficient has been completed to indicate some important conclusions. In 765 cases, death has occurred, the average duration of illness being 18 months. This is considerably longer than previously reported for a much smaller series of cases. This series of deaths may be further divided on the basis of extent of disease on admission. Such division showed that in 283 cases in which the disease was far advanced on admission the average duration of illness was 14.5 months; in 326 moderately advanced cases on admission the duration of illness was 19.3 months and for 155 cases with minimum extent on admission the average duration of illness was 21.7 months. Further, dividing the cases according to colour, those classed as black and dark brown, there being 532, the average duration of illness was 16.4 months, whereas for 232 patients classed as light and pale brown and others, the average duration of illness was 21.8 months.

2. Advisory Consultant for the Government of Jamaica.

The mobile X-ray diagnostic survey was inaugurated in November, 1934. With the beginning of 1935 this Unit has operated entirely at the expense of the Government of Jamaica under the direction of the Advisory Consultant. During the year 1935, the outstanding contribution to the tuberculosis programme of Jamaica has undoubtedly been the further development and of the service rendered by the mobile X-ray diagnostic unit. During the year this unit has visited every parish in Jamaica either as routine or upon the request of the Local Medical Officer of Health. A total of 43 trips was made during the year to 27 different rural centres. The largest number of visits was made to the parish of St. Ann where 520 individuals were examined; Manchester followed with 230 and St. James with 211 examinations; while in Hanover and Trelawny only 46 and 47 individuals were X-rayed. The following table shows by parish the total number of visits, the number of centres visited in each parish and the number of X-ray examinations, the latter sub-divided into new examinations and re-examinations.

Results of Rural X-ray Examinations.

Parishes.	Number Visits.	Number Centres Visited.	X-ray Examinations.			Positive Cases of Pulmonary Tuberculosis.			% of Positives, New Examinations.
			New Examinations.	Re-X-ray.	Total X-ray Examinations.	New.	Re-X-ray.	Total Cases.	
St. Mary ..	3	1	67	27	94	19	17	36	28.4
St. Ann ..	7	4	468	52	520	82	27	109	17.5
St. Catherine ..	3	2	156	17	173	33	6	39	21.2
Manchester ..	5	5	189	41	230	36	33	69	19.0
St. James ..	5	1	159	52	211	50	34	84	31.4
Clarendon ..	5	3	163	12	175	33	7	40	20.2
St. Thomas ..	3	1	101	29	130	13	25	38	12.8
St. Elizabeth ..	3	6	134	15	149	20	6	26	14.9
Portland ..	2	1	82	13	95	24	8	32	29.2
Westmoreland ..	2	1	55	17	72	15	11	26	27.3
Hanover ..	2	1	39	7	46	11	3	14	28.2
Trelawny ..	3	1	40	7	47	16	5	21	40 0
Total ..	43	27	1,653	289	1,942	352	182	534	21.2

The total number of positive cases in which diagnosis was materially aided by X-ray is also included. The percentage of positive new cases in relationship to new examinations is also included. The highest per cent. of positive cases found among those X-rayed occurred in those examined in St. Mary, St. James, Portland, Westmoreland, Hanover and Trelawny. The lowest per cent. of positive cases occurred in St. Thomas and St. Elizabeth. These findings indicate in some degree the interest of the local Medical Officers of Health in the tuberculosis problem. In St. Ann and Manchester the per cents. of positives found by X-ray were somewhat lower than in some of the other parishes, this being largely due to the definite policy emphasized in these parishes of examining all contact to positive cases. In most of the other parishes sufficient effort has not been directed along this line.

A total of 1,942 X-ray examinations was made during the year 1935 by the travelling X-ray unit. 1,653 were examinations of new cases and 289 represented re-examinations. 534 cases of pulmonary tuberculosis were found among those X-rayed; 352 were new cases and 182 were old cases re-examined. 27.5 per cent. of all individuals X-rayed were positive to pulmonary tuberculosis, while 21.2 per cent. of those examined for the first time were found positive.

Correlated to and dependent upon the service of the travelling X-ray unit has been the development of a surgical collapse therapy service conducted by Dr. R. A. S. Cory. This service operated from the first of the year until early in September when Dr. Cory departed for the United States for studies under a

Fellowship grant. During the first 9 months of the year Dr. Cory visited 8 parishes and performed or assisted in performing a total of 47 phrenicectomies as follows::—

St. Ann	.. ..	13	Westmoreland	.. ..	7
St. James	.. ..	3	St. Mary	.. ..	7
Manchester	.. ..	6	St. Thomas	.. ..	4
Clarendon	.. ..	3	Portland	.. ..	4

Several objectives have been in mind in the development of the collapse therapy service. Heretofore, patients suffering from tuberculosis in Jamaica, unable to come to Kingston, have been denied the benefit which might follow collapse therapy. Since practically none of the District Medical Officers have been trained or have had experience in this form of treatment, emphasis has therefore been placed through Dr. Cory's efforts, more on the training of District Medical Officers in performing pneumothorax and phrenicectomies in order that eventually local District Medical Officers may undertake collapse therapy unassisted. In at least 4 parishes this end has now been achieved and further progress is anticipated along this line during the coming year.

Collapse therapy for cases of tuberculosis residing in rural parts of Jamaica is especially justified because of the difficulty of bringing to such patients facilities for Hospital treatment or adequate home treatment. Collapse therapy has a further advantage in many instances of diminishing the infectious nature of the case and this is an important public health measure in protecting contacts from infection. While comparatively few of the positive cases have received the benefit of collapse therapy, the results thus far in those treated have been excellent. Many of the cases of pulmonary tuberculosis discovered through the rural surveys are in too advanced stages of the disease to afford surgical collapse. It is hoped that as time goes on a larger number of cases may be found suitable for this treatment. In addition to the 47 phrenicectomies, 7 cases have been treated with pneumothorax. The total number receiving such treatment could be considerably increased if more of the District Medical Officers had been trained in the technique of this treatment. This end will eventually be attained.

An additional phase of the service rendered by the mobile X-ray unit must be mentioned, namely its educational value. There are many signs and indications that the repeated visits of the X-ray units to various rural parts of the island has stimulated interest in the tuberculosis problem and a considerable amount of the fear and prejudice heretofore in evidence against seeking medical aid has been greatly dissipated. This reaction affords promise of greater achievement toward solving the tuberculosis problem in Jamaica.

A member of the International Health Board field staff acting as Advisory Consultant in tuberculosis for the Government of Jamaica, has been called upon repeatedly during the year to advise the Government in connection with problems which have arisen. The Jamaica Anti-Tuberculosis League have made some demands upon this staff member.

VIII.—SPECIAL TUBERCULOSIS STUDIES AT THE MENTAL HOSPITAL AND STONY HILL INDUSTRIAL SCHOOL.

By Dr. E. W. Flahiff.

In June, 1932, a study of the effect of vaccination with heat killed tubercle bacilli was undertaken at the Mental Hospital. As many as possible of the new patients have been tuberculin tested within one month of their admission and divided into three groups: (1) Those who were tuberculin positive on admission; (2) Those who were tuberculin negative on admission and received the series of vaccinations; and (3) Every other tuberculin negative admission (half of the total tuberculin negative admissions) did not receive the vaccination and acted as controls for Group 2.

The members of the vaccinated group received weekly intracutaneous injections of 1/10th milligram of the vaccine for a period of five weeks unless an intermediate injection produced a local reaction greater than one centimeter in diameter, in which event the series was discontinued. At the end of five weeks the tuberculin test was repeated (.01 milligram for the first test and 1.0 milligram for the second if there was no reaction to the first). If this test was negative the patient was allowed one month "rest" and then the tuberculin test was repeated. If there was no reaction on this occasion, a further series of vaccinations were given and the tuberculin test repeated. Regardless of the result no more than ten vaccinations were given to any individual.

Since the beginning of this study there have been 1,031 individuals in the group of tuberculin positive admissions, 121 in the vaccinated group and 115 in the control group. At the end of December, 1935, 3.3% of the vaccinated cases had developed pulmonary tuberculosis; 4.8% of the tuberculin positive admissions; and 7.0% of the controls. The diagnosis of tuberculosis was confirmed by autopsy or positive X-ray examination in 100% of the vaccinated cases, 92% of the tuberculin positive admissions, and 87.5% of the controls. This seems to indicate a definite protection against tuberculosis disease by the administration of heat killed tubercle bacilli.

Several of the cases of tuberculosis found in each of these groups were discovered within three months of their admission and it is probable that most of these cases had tuberculosis when they were admitted to the institution. If these are eliminated from each group the results are even more striking; in the vaccinated group the percentage of those who developed tuberculosis would be 1.7%; in the tuberculin positive admissions, 3.6%; and in the controls, 5.3%.

During the year 1935 there were 520 new patients admitted to the Institution and of these 433 (84.9%) received tuberculin tests within one month after their admission. 152 individuals were found negative to tuberculin and, of these, 72 were added to the vaccinated group and 78 to the controls. 442 (86.7% of all new admissions received X-ray examination of the chest. Among these patients 10 cases of manifest tuberculosis were found. This ensured early isolation of these infective cases with resultant protection to other inmates.

Stony Hill Industrial School.

It was deemed advisable to study the effect of the heat-killed tubercle bacilli vaccine on a group of younger individuals to determine the efficacy of the vaccine in producing skin sensitivity to the tuberculin and the length of time the sensitiveness is maintained. It was necessary, therefore, to select a group with little or no change of infection from an open case of tuberculosis. The Stony Hill Industrial School was selected as being suitable. The first step in this study was to tuberculin test and X-ray as many inmates as possible and also to X-ray as many members of the staff as possible, to eliminate any possible source of infection. All but two members of the staff were done and no evidence of tuberculosis was found.

Among the 405 inmates of the Institution, 96.3% were tuberculin tested and 96.3% received an X-ray examination of the chest, 158 of the inmates were found to be negative to the tuberculin test and 80 of these received the course of vaccination, using the same method, dose, and period of time as is being used in the Mental Hospital. 93.8% of the vaccinated cases became tuberculin positive and only 6.1% of the controls became positive at any time during the year. Only one of the controls showed a severe reaction, the others reacting very slightly to 1.0 milligram of tuberculin. With repeated tuberculin tests every three months during the year, it has been possible to observe any changes in the reaction to tuberculin of both the vaccinated and control cases. A high degree of sensitivity was maintained in the vaccinated cases for three months, but at the end of six months there was a marked drop. For the next three months there was little change in the percentage of the reactors or the degree of their sensitiveness. At the end of the year there was a considerable drop in the percentage of the vaccinated cases still reacting to tuberculin, but a very marked drop in the degree of sensitiveness.